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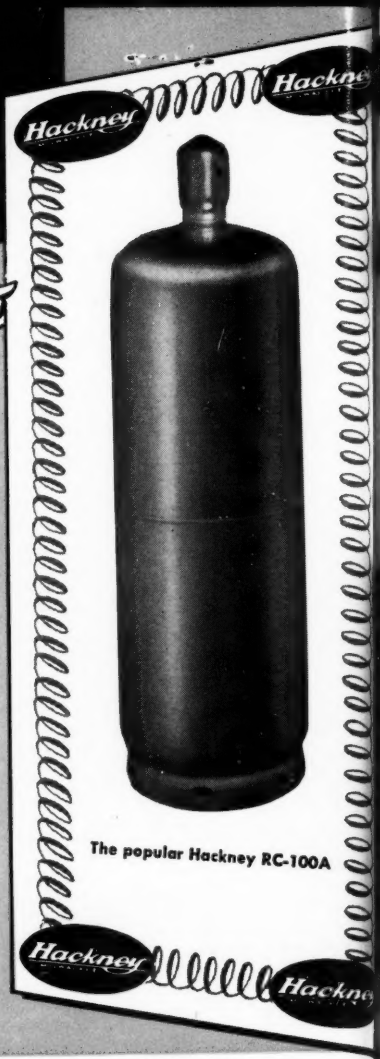

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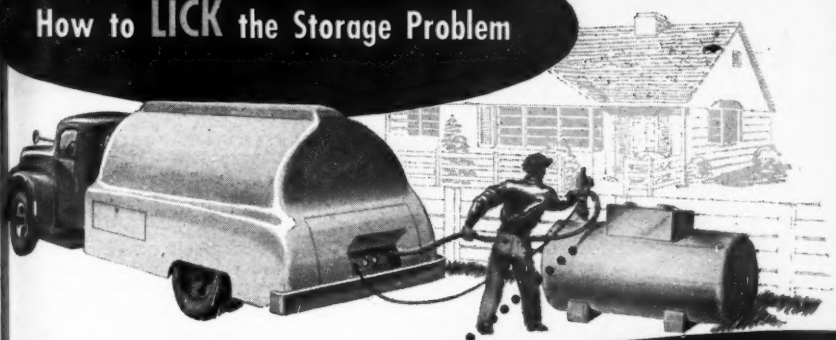

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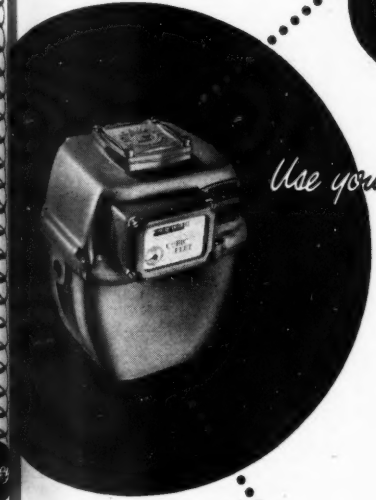

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BUTANE-PROPANE News

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AUGUST, 1952

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HEADQUARTERS FOR LP-GAS INFORMATION SINCE 1931

CONNECTICUT

Kindly advise what the difference in cost is between fuel oil having a heat value of 140,000 Btu per gal. @ $.129 and propane gas at $6. per 100 lbs., Btu value.

We are trying to determine which fuel is cheaper for heating purposes.

M.B.

The difference in cost between fuel oil and propane cannot be based on a straight heating value comparison. Instead, the comparison should be based on the effective heat or that delivered to the rooms. Also, other factors such as cleanliness, electric power needs, odors, leakage of oil, burner troubles, etc., must be considered.

It can be reasonably expected that an efficiency of 75% may be obtained with a good gas fired, vented space heater, while 65% would be considered good for an oil fired heater, clean and in good adjustment.

Based on these efficiencies, the following fuel price comparison may be computed:

140,000 Btu per gallon oil x .65 = 91,000 Btu/gal.

21,690 Btu per pound propane x .75 = 16,300 Btu/lb.

Propane required to deliver the same quantity of heat as one gallon of oil (91,000 ÷ 16,300) = 5.58 lb.

Cost of propane @ $6.00 per 100 lb. (5.58 x .06) = $.33½

The Bottled Gas Manual contains a chapter discussing the relative merits of the above fuels, and in addition other competitive fuels (wood, coal, and electricity) are discussed.—Ed.

MISSOURI

About a year ago I installed a 50,000 Btu Martin L. P. gas space heater in a new home being built here in La Plata. This space heater is vented directly into a 5-in. transite with a good suction and it is about 2 ft. above the roof. The house has a tin foil insulation and all last winter, when the heater was burning, water ran off the wall. The other day with no heating and just cooking, water ran off the wall.

What could be the cause of this? Of course, they blame the gas and say they will have to put a drier heat in. I have tried everything and can't seem to find a remedy for it. I would appreciate any information you could give me in this matter.

H.H.R.

The fact that during the cool days, which you mention, when the space heater was not operating yet damp walls were experienced, indicates the trouble is not caused by the space heater. It would be well to double check and be sure that there is no leakage of gases from the combustion chamber of the furnace into that portion through which the room air circulates.

You state the furnace is vented "directly" in a 5" transite flue. Did you use the draft hood which came with the furnace? This is the box, open on the bottom, which connects to the furnace combustion chamber outlet and to which the vent is attached.

The cause of damp walls is high moisture content of the air within the room and cool walls. Both conditions are necessary and the combination of part or all of the following conditions may be causing the trouble.

(1) Cold walls may be caused by lack of insulation, poor insulation, or improperly installed insulation. Lag in heating time between air and wall surface also is a factor.

(2) Moisture may build up in the air within the room from unvented heaters, steam from cooking, plants, humans and animals breathing, bathing, washing, drying clothes and many other things. Many people place a pan of water on or near the heater to add moisture to the air in the room.

(3) Poor ventilation may be caused by tightly fitting doors, windows, etc. If the air is not changed periodically, vapors from cooking, etc., as listed above, build up and will start to condense on relatively warm walls. The fact this is a new house indicates that it may be tightly closed. The kitchen at least should be well ventilated.

Unless he corrects some faulty conditions which are causing the trouble now, your customer may be surprised and disappointed that the trouble does not clear up if he installs what he terms "drier heat." One form of fuel produces about as much water vapor as another, and actually, vented heaters do not add moisture to the air. Vented heaters which take the room air for combustion provide much of the ventilation which is needed to keep the moisture content down in the room.—Ed.

●

ITALY

I would be glad to have your kind reply on a subject which is quite interesting and source of questions. You have a twin L. P. gas tank truck: do you have a communication piping between the two tanks to obtain an equal level complying with the communicating vessel principle?

For instance, I know that by filling one tank independently from the other, it would not be a strain on the body, but when the truck is running a highway curve with a certain grade, there would obviously be a dangerous movement of the liquid when you are running the truck with just one tank filled of liquid.

I ask you to let me have all your suggestions and experienced knowledge about that question.

Dr. I.A.B.

There is no direct communicating piping between the twin tanks to obtain an equal liquid level such as you consider in your question.

In most cases the tanks are connected through the liquid fill and withdrawal lines and the vapor connections. However, both tanks are individually valved at each connection and are thereby independent of each other. One tank may carry propane and the other butane, if desired, or one may be empty while the other is full.

It does unbalance the truck when traveling with one full and one empty tank. It requires care and skill in driving but it can be done safely. However, it is not regular practice and is usually done only on short hauls.—Ed.

●

IOWA

After our 100-lb. propane cylinders have been in service several years, we have complaints about extremely strong odors coming from the gas when the cylinders are almost empty.

Usually the cylinders contain less than 10 lbs. of gas when the complaint occurs. Apparently the odorant accumulates over a period of years; this, coupled with the seeming tendency for the odorant to concentrate in the last few pounds of gas, creates a very strong odor.

In an attempt to eliminate this we purged the cylinders with about a pound of liquid propane; inverting the cylinders and allowing the liquid to escape into the open air. An oily vapor came out with the liquid. In each case the most offending cylinders contained an ounce or two of this oily liquid.

My question is: Does ethyl mercaptan assume a liquid form like this by dropping out of the propane over a period of years? Is the method we have been using the most effective one? The owner of this firm feels that purging is entirely ineffective and nothing can be done to eliminate the strong odor.

About 50% of our cylinders are 10 years old or more and this problem is assuming serious proportions. Therefore, I would greatly appreciate any advice you can supply.

E.J.W.

Odorants are handled and introduced into L. P. gas as a liquid. The odorant is designed so that it mixes with the liquid and gradually leaves the liquid in proportion to the rate of vaporization, so that the gas is odorized. General practice is to add the odorant in batches, either as transports are loaded or in the storage vessels at the refineries.

Heavy ends and oil from handling equipment gradually accumulate in the cylinders as the years pass. A certain amount of the odorants also accumulate in these heavy ends and gradually build up in the cylinder.

Many bottle gas dealers have encountered this trouble. Some of them eliminate the strong offending odor by purging with a small quantity of gas as you describe. It may require a repeat performance or two to bring it under control in the worst cylinders.

Since the odorant is added in batches, it is possible your supplier may be a bit careless in controlling the quantities added. It would be well to contact them regarding your trouble and request them to check their practice in adding the odorant.—Ed.

●

NORTH DAKOTA

Why do liquid pipes extend to the bottom of tanks from the fill connection?

It would sem that filling directly into the vapor space might work better in that the incoming gas should cool the vapor and reduce the pressure, necessitating less frequent use of a vapor return.

J.W.T.

The purpose for the extensions on the filler pipes in L. P. gas tanks is to permit removal of liquid through these fill connections if it becomes necessary or desirable to do so. However, not all tanks are equipped with these filler pipe extensions.

Many storage tanks are used for filling the L. P. gas tanks on farm machinery, trucks and to supply liquid fuel to stationary engines or equipment. Adapters are available which can be connected to the filler valves for liquid withdrawal from tanks fitted with the liquid fill valve extension pipe.

We do not believe the discharge of liquid into the vapor space would provide adequate cooling effect to provide noticeable help in fuel transfer.—Ed.

●

FLORIDA

I have a copy of your *Handbook of Butane-Propane Gases*, (third edition) and on Page 13, Table 1, it says that 1 lb. of propane at 60°F. will make 8.59 cu. ft. of gas at atmospheric pressure.

If this is correct would you tell me how many cu. ft. of gas will 1 lb. of propane make at -44°F. (or its vaporizing temperature) at atmospheric pressure?

B.O.K.

The volume of a gas varies as its absolute temperature providing the pressure remains constant. Since 0 absolute is -460°F then 0°F is 460F degrees absolute temperature and 60°F is 520F degrees absolute temperature. Also -44°F is 460 − 44 = 416F degrees absolute.

Therefore, since a pound of propane will produce 8.59 cu. ft. of vapor when the vapor is measured at 60°F (520F° absolute) and at atmospheric pressure it will occupy (8.59 x 416/520) = 6.87 cu. ft. when cooled to -44°F and at standard atmospheric pressure. Although propane, like many other vapors, does not follow the true gas laws, the above is sufficiently accurate for practical purposes.—Ed.

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THE fact that you are a part of the "fastest growing industry" has all the significance of a ride on the latest jet-propelled rocket. Continuing consumer demand, which has added 3,000,000 customers since 1945 and quadrupled fuel gallonage, is forcing distributors and dealers to keep one eye on the cash register and the other on day-to-day fuel deliveries.

Only by constant vigilance can they avoid the pitfalls of too-rapid expansion—lack of working captal, unbalanced loads, careless installations or repairs, inadequate safety measures and too heavy commitments for future operations.

Fuel producers have a potential output well above today's needs and a more or less constant production schedule to maintain. Because consumer demands are heaviest in winter and lightest in summer, the industry is faced with hot-weather production storage for cold-weather needs.

Two methods offer best results on this storage problem. The first is to develop underground storage in salt beds. Because of the cost factors and necessary size of such storage, only a few large companies or groups of dealers, can plan such projects. Load balancing, the second method, can be participated in by all members of the industry regardless of size, with immediate value to both the individual operators and the industry as a whole.

The primary load for the industry today is the domestic consumer's growing demands for gas fuel cooking, water heating, space heating and refrigeration. To balance the winter space heating demand, other uses must be promoted that have a peak demand in summer months. Industrial and agricultural uses fit these requirements well.

Our September issue will be devoted to farm, industrial and power applications of LPG to focus attention on these important markets for the dealer, who should explore the advantages of well-known and little-known uses of LPG in industry and agriculture to help solve his load building and balancing problems.

•

The Civil Aeronautics Authority has issued a warning about the use of cigarette lighters containing liquid "in a free state" in airplanes. This, the CAA points out, could result in a troublesome fire, as the liquid is likely to overflow when climbing to high altitude. The simple precaution suggested by the Authority is for each passenger to be sure that no excess fluid exists on the outside of the lighter before attempting to use it.

The simpler precaution, which was not mentioned by the Authority, is to use a butane lighter, which does not overflow at any altitude.

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COST per million Btu's is seldom the whole story in regard to the comparative cost of performing industrial operations with LPG and other fuels. The cards are not all down until we know the whole cost of doing the job, and the effect of time which may be gained or lost with one fuel as compared with the other. That sounds a bit academic, but three widely scattered examples which came under observation during a recent trip will pin this principle down to earth.

Clyde McKinnon, Sweet Home, Ore., is hauling logs out of the woods on one of the new International factory produced propane-equipped trucks. Another operator is hauling over the same route with a similar truck using the same size engine but operating on gasoline. McKinnon's truck has a few more horsepower than the other man's. This slight horsepower advantage enables Clyde to make four round trips per day, while the best the other truck does is three trips. Propane and gasoline cost almost the same amount per gallon in Oregon, so on a Btu basis, propane costs the most. But Clyde gets paid for one third more work per day, because his fuel is able to do more work. He could pay twice the present cost for his propane, and still be money ahead.

Dan Perkins, Sacramento, Calif., tells of a fruit dehydrator which originally operated on black oil (very low priced), using the indirect-fired method so smoke and fumes would not contaminate the fruit. The plant was re-equipped to burn propane, with direct firing, which utilizes more of the Btu's in the fuel. Due to the higher cost of LPG, the fuel cost per day was a little higher than with oil. But with oil heat every time the dehydrator doors were opened to put in fresh fruit and remove processed fruit, it required several minutes to bring the tunnel back up to dehydrating temperature, due to the time lag in the indirect method of handling the heat. With the propane burners, after the doors had been opened and closed, the flame came up and brought an immediate replenishment of the lost heat. The result was more cars of fruit through the dehydrator each day, and lower cost per ton.

Then there is the turkey brooding story from Chaska, Minn., which appeared in the July issue. Changing from oil to gas heat in the brooders not only reduced the fuel bill, but it also reduced the payroll cost of caring for the operation, by making night shift employes unnecessary. The net result was a reduction of brooding cost by 40%. Yet propane costs about twice as much per gallon as the oil which was formerly used in this plant.

In all of these cases, time was a more important factor than fuel in determining cost and profit. The same

principle will apply to innumerable industrial applications of fuel. Most business men will see this if it is shown to them, but few will bother to figure it out for themselves.

•

Live industries and live men, are not bound down by traditions, which are merely mental laws against doing better.

•

Out in West Texas they have been experiencing the worst drought in history. Ranchers are marketing two-year-old steers that have never seen rain. How do they feed them? Butane makes it possible.

The cattle eat cactus—"prickly pear"—which first has a quick singe with a butane flame thrower to remove the thorns. Cattle so wild that the ranchers formerly couldn't get within roping distance on a fast horse, come trotting out of the brush in droves at the first roar of the flame throwers. No fooling! They used to think that "prickly pear" was ruining the range, but now it is saving the cattle industry. Credit Hughes Butane Co. of Cotulla, Tex., with the development of the butane flamer for burning pears. Mr. Hughes took the job away from kerosene—showed his ranchers how to build the burners—now supplies 500 outfits, and delivers 200,000 gal. of fuel per month for this unusual purpose. That's making profits out of adversity!

•

LPG equipment peddler's lament overheard at the Texas Butane Dealers Assn. convention in Dallas last month: "I gotta talk my company into gettin' me a heavier car for this rough Texas road work. I just can't take the beating that these light cars give me on those long trips. Besides, the trunks just ain't big enough. Why, after I get my golf clubs, outboard motor, fishing tackle, guns and camera in, there ain't no room left for samples or catalogues."

•

George J. Schulte, Jr., assistant director of the L.P. Gas Information Service, did a good job for the dealers who serve the small towns when he landed a story about the use of propane to melt type metal in newspaper plants, in *The Publishers' Auxiliary*, a trade newspaper which goes to 14,000 small town daily and weekly newspapers.

If you are not now selling gas to the newspaper publishers and larger printing plants in your neighborhood, it might be profitable to call on them and tell your story. Propane makes the best possible fuel for melting the metal in typesetting machines and stereotype casting pots. Many plants also need gas heat to dry the ink on the big job printing presses. It is a good market, offering a steady year-round volume for you.

•

If you don't know how to convert gasoline engines to burn butane or propane, don't throw up your hands in despair. There's a book on the market that tells you all about it. In every detail, too.

It is titled "Butane-Propane Power Manual," recently published by BUTANE-PROPANE *News*, and contains 330 pages of vital information on the application of L. P. gas to internal combustion engines. You no longer need hesitate to create a department in your business for this added source of income just because you have been uninformed on the subject.

Carl Abell

Gastobac burners, guards, and piping, Rural Gas Service portable curing installation in a Connecticut Valley wrapper-leaf curing barn.

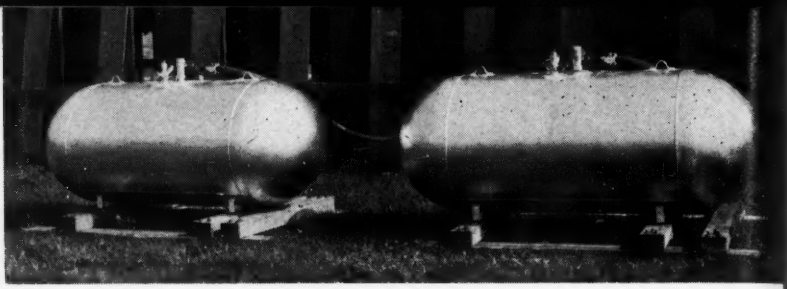
LPG Curing Revolution In Tobaccoland!

L. P. gas-firing replacing other fuels at reduced costs—Seen as excellent load balancer for dealers.

FOR those distributor-dealers who operate in the tobacco producing areas, one of the best load-balancing opportunities that has come along in years is the curing of tobacco. While the equipment and operating system involved in gas-firing at the tobacco barns is still fairly new, there are enough authentic reports available to establish that curing with gas has many advantages over the older systems using wood, charcoal, or oil as the source of drying heat.

Even in the Connecticut River Valley, where the price of L. P. gas is considerably higher than it is in any other tobacco producing area, tests supervised by the Storrs Agricultural Experiment Station and the U. S. Department of Agriculture show a saving of 40% in the cost of curing, plus an average of nearly 10% higher price per pound because of higher average quality, plus additional pounds because the crop undergoes less shrinkage during drying with the

By CARL ABELL



Two 500-gal. tanks are used to assure ample vaporization on cool nights near close of season.

uniformly controlled temperature provided by gas heat. These advantages are being substantiated by installations in many other regions where tobacco is a major crop.

More progress has probably been made in gas curing in the shade-grown cigar wrapper tobacco area in Massachusetts and Connecticut than anywhere else. Reports compiled early this year indicated that approximately 800 of the 5,000 tobacco barns in the Connecticut River Valley had been equipped with LPG curing systems. It was estimated that this area alone offers a potential market for 10 to 12 million gallons per year. It is an ideal summer load, as the consumption starts about the middle of July, and extends into the first third of September. (Most other tobacco areas go into production earlier, and continue later into the fall).

Rural Gas Service, Inc., Westfield, Mass., and Suburban Propane Gas Corp. have done a good share of the installation work in the Connecticut Valley. Rural Gas Service has developed a portable system, which can be very quickly moved from one barn to another. As the firing is intermittent in the curing of the shade-grown tobacco, one outfit can thus be used to heat three barns.

The piping for this system is prefabricated, complete with all outlet connections for the burners, and with pipe unions between sections. The burners are attached to the piping by flexible hoses, and a standard high pressure hose connects the piping and the supply tanks. Two 500-gal. tanks are used in this system, in order to insure adequate vaporization to meet the needs of the burners during the cool evenings toward the close of the drying season.

Burners are located eight feet apart each way on the floor of the barn. Since barns vary in size, the number of units required varies also, but with the average size barn, which takes care of the crop from five acres, the requirement is for 60 to 80 burners.

Each has its individual control valve, and hand control is possible, although it is time-consuming, and the curing cannot equal that produced by the automatically controlled outfits.

With the automatic control, the single thermostat dial is located near the door, and all regulation is

done at the single valve controlled by the thermostat, which operates all burners alike, and provides uniform temperature throughout the barn, with no cold corners, and no overheated areas. Such close control is not accomplished with any other fuel, and it is this which is responsible for the superior quality and the higher market price for the gas cured product.

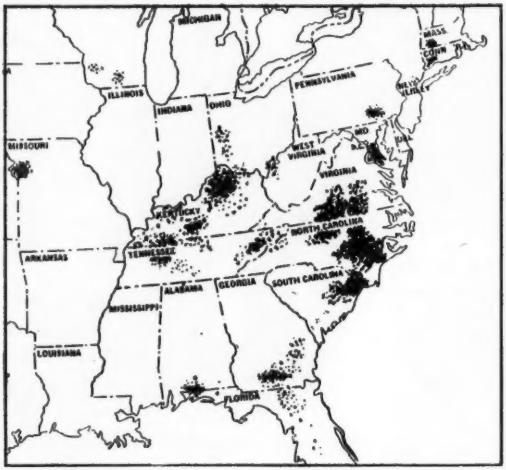
The previously used fuel in the Connecticut area has in most cases been charcoal briquettes, burned in "salamanders" spaced eight feet apart on the floor. These were not equipped with flues, and skillful firing was necessary to operate without smoke, which would discolor and reduce the value of the leaves. Charcoal firing also required a man in constant attendance day and night during the heating periods, and the only temperature control was the man.

Going into the heated barn to trim the fires was not pleasant, but with the gas fired system, the man need not go into the hot barn, and since constant attention is not necessary, he can take care of several barns.

Demonstrating with "hand" of tobacco, left, on guard over lighted burner, that Gastobac system eliminates fire hazard.

Another problem which was

Bringing shade-grown wrapper-leaf tobacco to the curing barn. Worth up to $7 per lb., it is handled as carefully as a baby.



Location of principle tobacco producing areas. Use of controlled heat for curing increases grower's profits. Drying season extends from July into September, making this a desirable summer load.

prevalent with previous curing methods, and which seems to have been overcome with gas firing is "pole rot." In some years this has resulted in losses as high as $2,000,000 in Connecticut shade-grown tobacco. This condition is caused by condensation of moisture on the poles from which the tobacco is hung. It results from a combination of unfavorable weather conditions and lowering of temperature in the barns. Avoiding this condition calls for extreme skill in handling the charcoal fires, but with automatic temperature control and gas burners, the thermostat effectively prevents condensation.

Experience of operators throughout the Valley bears out the conclusions of the Experiment Station, based on its first year's investigations, summarized in its official report as follows:

(1) Gas firing produced tobacco with an average value of 40 to 48 cents per lb. more than the average value of tobacco cured with charcoal.

(2) Curing with gas cost approximately $60.00 per acre as compared with approximately $100 per acre for charcoal briquettes during the 1950 season.

(3) It was estimated that one man could easily manage four or five gas-fired sheds located in the same general area if insurance requirements permit.

(4) Charcoal firing may require a more experienced fireman than does gas firing.

The above refers specifically to the methods of curing the shade-grown wrapper-leaf tobacco grown in the Connecticut River Valley. Incidentally, the price differential is for that product, and should not be used as a basis of comparison with types of tobacco leaf which

have lower market value. It is apparent, however, that the improved quality of leaf coming out of the barns in other areas growing other types of tobacco, are uniformly higher in quality than with other methods of cure. Due to the uniformity and accurate control of temperature, the net weight of the finished product is higher, by about the same proportions evident in the Connecticut tests.

This is evident from a study of 70 reports assembled by Bright Leaf Industries, Inc., Charlotte, N. C., who developed the Gastobac curing system and perfected the equipment which is most widely used in gas-curing of tobacco. These reports were from users in North and South Carolina, Georgia, and Florida, where most of the curing in the past has been done with furnaces fired with wood, coal, or oil. These reports are surprisingly unanimous in their depicting of extra profits which come from the use of gas instead of their former fuels for curing the field-grown tobaccos of that region.

Many other advantages are also mentioned. Extracts from some of these reports follow:

"My tobacco brought 4 to 10 cents more per pound."

"My extra profits run between $200 and $300 per acre."

"No fire hazard with gas." (Several farmers reported having lost barns and crops on account of fire with other fuels).

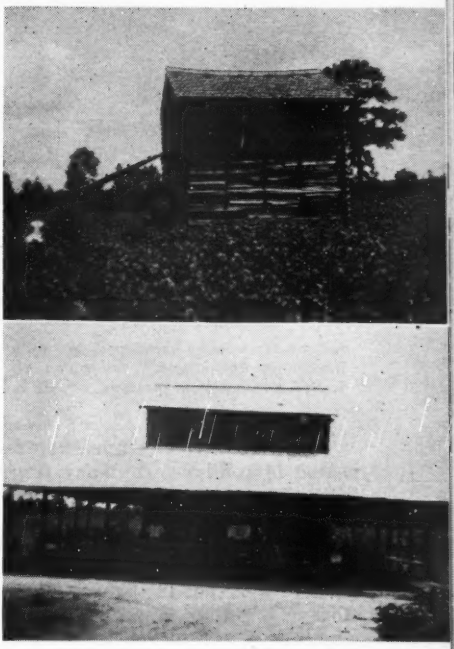
"The automatic control gives me time to do my field work during the day, and I can sleep at night because I do not have to tend the fire."

"The fuel costs a little more than oil, but the labor cost is a great deal less, so it is more economical with gas."

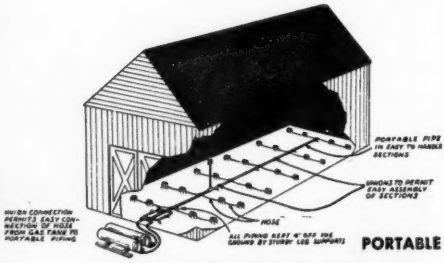
"There are no flues to take up space, and no oil smoke to escape and color the leaves. I can put more sticks in the barn, and get a more uniform cure."

"The gas cooking cures the barn out quicker—12 to 24 hours. It's like having about one extra barn in six."

"You can kill out quicker, at a lower temperature. This leaves more dry weight in the tobacco, of a better grade."



Barns vary from good to poor, but gas heats them all.


UNION CONNECTION PERMITS EASY CONNECTION OF HOSE FROM GAS TANK TO PORTABLE PIPING
PORTABLE PIPE IN EASY TO HANDLE SECTIONS
UNIONS TO PERMIT EASY ASSEMBLY OF SECTIONS
HOSE
ALL PIPING REST 4" OFF THE GROUND BY STURDY LEG SUPPORTS
PORTABLE

New method of portable piping permits easy installation in any size tobacco shed — the time required for setting up portable piping in a ten bent shed by actual test is approximately fifteen minutes.

Portable installation developed for quick transfer in Connecticut Valley makes effective demonstration possible anywhere.

These are typical remarks, repeated in similar form many times in the 70 reports. In addition, several of the farmers who grow other crops as well as tobacco, commented that with the gas installation, the burners were not in the way of the storage of other crops during the winter.

Several stated that the barns were ideal for storage of sweet potatos, as one burner could be left burning during cold periods, to prevent freezing of the potatoes. Imagine doing that with a wood furnace! Or even with coal or oil.

The cost of installation of the typical Gastobac system in a five acre barn requiring 80 burners is between $1000 and $1200. Once it is installed, there is little maintenance expense. The burners, guards, piping, and tank are practically good for a lifetime.

There are no flues, stacks, or vent pipes to take up space and reduce the capacity of the barn. No flues to burn through and require replacement, or set fire to the crop and the barn. No furnaces to give up the ghost and cause the loss of a partly cured crop. No condensation to put moisture on the poles and cause rotting at the base of the leaves. Condensation problems come only from uncontrolled overheating and cooling during the drying process, and the thermostatic gas control holds the temperature to its exact setting.

It is estimated that there are more than 500,000 tobacco barns in the Southeastern states in which the current sources of heat are oil, coal, and wood. Converted to LPG, the average barn represents a fuel consumption of 1000-gal. per season.

One tobacco barn will balance the winter load of an average domestic heating installation. According to reports, the most likely prospects are those who are now burning oil —and between 250,000,000 and 300,000,000 gallons of oil are burned each year in heating those Southeastern tobacco barns. What a potential market!

While the portable drying system developed by Rural Gas Service for the Connecticut Valley barns does not have the same advantages under the different conditions in other areas, it is quite likely that a portable demonstration outfit, full scale size, which could be pulled out to the prospective customer's barn on a trailer, coupled up and put in service in less than two hours, would be a potent means of making sales.

Russell Trexler of Trexler Gas Service Co. uses one of his service truck radio phones to talk to office. Truck is also equipped with hydraulic tailgate.

Trexler 'Treats' Its Customers

Free repairs, uninterrupted metered service and sliding-scale rates build "second appliance" sales in 20% of homes for Pennsylvania dealer's 2000 domestic accounts.

THE Trexler Gas Service Co., East Greenville, Pa., believes in giving all its customers a complete repair service, and because of this policy "loses" $5000 annually. Trexler's customers do not make any payments to the firm for repairs or services and in some cases a minimum charge near the wholesale price is made to cover the cost of materials used.

"We are primarily in the gas and appliance selling business and do not want to make money on any service or repairs that customers need," says Russell C. Trexler, president. "We feel that by giving such services to customers, at little or no cost to them, it builds goodwill for our bottled gas business—that means more appliances in every bottled gas customer's home and a build-up for us to their neighbors, friends and relatives for gas service and appliances."

By TED KNIGHT

Thus the firm's loss of $5000 per year is marked off as "advertising" expense, for the firm feels it couldn't spend this amount of money in any better way to build goodwill for the company and increase interest in the use of bottled gas. This policy of the company has helped to build up a following of more than 2000 domestic accounts.

"We also charge our customers the most nominal figure—about $19.50—in making the initial gas installation," says Mr. Trexler. "We install all the necessary piping, move around whatever appliances are in the home and spend all the time needed. This influences customers in buying more bottled gas appliances and naturally increases our gas load."

In an effort to stimulate the use of more bottled gas appliances in the home, Trexler features a sliding-scale rate schedule that extends over a two-month period, then starts with the higher rate again. Domestic gas service rates run: first 50 decitherms at 5c; next 40 decitherms at 4½c; next 130 decitherms at 3¾c; and all over 220 decitherms at 2¾c. A 4% discount is allowed if bills are paid within 10 days.

"All single appliance gas users are informed of our reducing gas prices for the use of more gas which helps to stimulate the interest in additional appliances," relates Mr. Trexler. "Inasmuch as we will service and repair these appliances at a bare minimum or free of charge, we have succeeded in placing a second gas appliance in more than 20% of our customers' homes, three appliances in 10% and even four appliances in certain residences. Water heaters are usually the second appliance to ranges, house heaters, third, and refrigerators, the fourth."

The firm also services many industrial accounts such as chemical and industrial firms. As gas consumption by these firms is estimated in advance, they get a flat rate for the use of all bottled gas.

Trexler Gas Service Co. store and office is located in heart of East Greenville, Pa. Windows feature bottled gas appliances.

If their use increases, rates are adjusted accordingly.

All the firm's installations are metered. Practically all the domestic users have single or double cylinder hook-ups, depending upon the number of appliances they use. Larger and industrial users have 200 to 400 gal. above-ground bulk tanks, also metered service.

Trexler's delivery trucks visit all accounts every six to eight weeks. A new cylinder of gas is hooked up

to every installation regardless of the amount of gas consumed and a reading taken from the meter to disclose the amount consumed. In the bulk storage tanks, more gas is added from the tank truck.

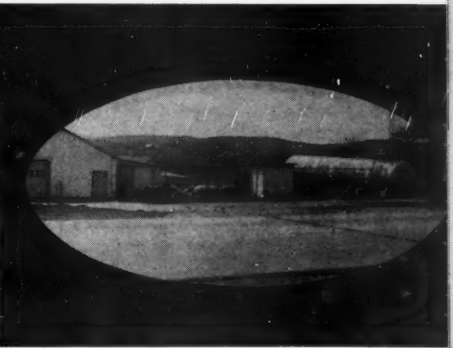
"We want all our customers to have gas when they need it," says Mr. Trexler, "and we find it pays off in the long run to replace cylinders when our trucks make a visit rather than wait for a rush phone call or a postal card. We have customers on our books who have enjoyed uninterrupted service for over 15 years. Think of what this means to us in goodwill and word-of-mouth promotion!"

All customers are billed bimonthly with a 4% discount if paid in 10 days. Bills are issued in the form of postal cards, with the customer ripping off a perforated section and clipping it to their checks. If customers are more than two billings behind and no effort has been made to pay the bill, they get a termination of service notice.

This is a postal card that says the service man could not leave any gas on his last trip because of the unpaid balance, and if the customer wants uninterrupted service, they must clear up their balance. Should the customer run out of gas before the bill is paid and the serviceman has to make an extra trip to the customer, they are charged $2 because of this condition.

In an effort to give his customers better service and to reduce the expense involved in serving far flung routes that cover a 35-mile radius from Trexler's headquarters, the firm has installed a two-way radio system that connects its three bottled gas service trucks and the office.

Mr. Trexler demonstrates appliances in store's all-LPG kitchen. Future cooking demonstrations will be held in the model kitchen.



Bulk plant which doubles as filling station is located near highway. Service hose is extended for refueling of passing trucks.

"We invested $3000 in this two-way radio system," relates Mr. Trexler, "but we feel the service it will give our customers and ourselves over a period of years will more than amortize itself, after which it will be a profitable asset to our business."

The balance of the fleet consists of a 1300-gal. tanker truck, a delivery wagon and a special service truck. Mr. Trexler expects to extend his two-way radio system to these trucks very shortly at a cost of about $500 for each additional unit.

With three of the firm's trucks making daily deliveries, the radio system has saved the firm many countless call-backs. In addition, the routemen have been able to answer on the spot almost any question posed by customers as they call the office whenever needed. As one driver can also speak to another, this situation has also proven very beneficial and efficient.

The radio equipment for the three trucks and office is serviced by a radio maintenance concern at a charge of $34 per month.

When the bottle gas trucks leave the bulk plant each morning, they have 35 cylinders of gas on hand, and average about 70 stops between them while the tanker may make up to five or six calls among larger users. During the summer months all cylinders are painted when returned to the plant.

"Since the start of the war, we attached hydraulic tailgates to our service trucks, one of the best assets to our trucks," relates Mr. Trexler. "Our drivers can exchange tanks of gas with less effort and, in the case of appliances, can make deliveries themselves. These tailgates have more than paid off in labor and time savings."

All customers have been routed in books according to the best and shortest traveling distances. As a rule, the firm keeps the same men on the same routes because they become familiar with the roads, the best way of making deliveries, and getting to know the customers personally.

Each route book contains a consumption record of each customer. The driver records the day of the visit, the meter reading, and the new cylinder number when he re-

Mr. Trexler calls to one of his trucks from the office. Note bulletin board, left, on which notes are made so that calls to drivers can be made outlining necessary jobs and calls.

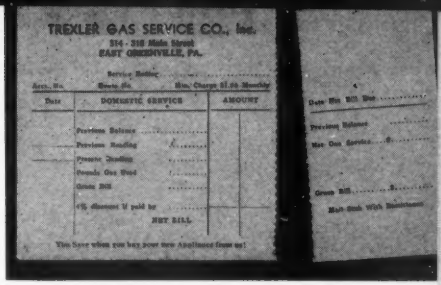
places the one in use. On the back of every page, a map is drawn by the driver to show him the exact location of this customer in relation to his previous and next calls.

All the gas accounts are kept on a stencil system, in the same order as the route books. As soon as the route books are returned, the cost of the gas consumed is recorded and then copied on a set of office records. Then the stencil plates for the route are run off on the billing postals, the charges filled in and they are ready for mailing.

These same stencil plates are used in the firm's promotion of additional appliances to its gas accounts. Periodically, these names are run off on postals and envelopes into which stuffers are placed promoting other L. P. gas appliances.

"We try to cut down our overhead and labor in our office as well as out on the road," says Mr. Trexler, "and we find that our stencil system and metered mailing cuts off hours from our regular billing and mailing activities."

An outside salesman is constantly contacting gas accounts in an effort to sell them additional appliances. He also contacts builders and contractors to discover new homes and projects being built and in this way is able to contact the new home owner. The salesman also serves as a trouble shooter, helping our customers in any way possible. As he also works in the store, he gets many leads from prospects coming to examine appliances. The store, incidentally, features a complete LPG kitchen.


TREXLER GAS SERVICE CO., Inc.
314 - 316 Main Street
EAST GREENVILLE, Pa.

Service Rates

Acct. No. | Gross Rt. | Min. Charge $1.10 Monday

Date	DOMESTIC SERVICE	AMOUNT
	Previous Balance	
	Previous Reading	
	Present Reading	
	Therms Gas Used	
	Gross Bill	
	4% discount if paid by	
	NET BILL	

You Save when you buy your new Appliance from us!

Date Rec. Bill Due .....
Previous Balance .....
Net Gas Service .....
Gross Bill .....
Mail Stub With Remittance

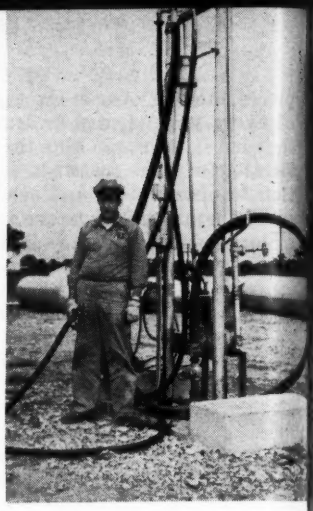
Sample of Trexler's postcard billing system. Perforated card is sent to customer who returns stub portion with remittance. Billing card notes 4% discount if paid within 10 days.

"Last fall we held a cooking class in the East Greenville high school," says Mr. Trexler. "It brought us a sizeable audience. All visitors to the demonstration filled out entrance cards which listed their names and addresses in addition to the type of fuel-consuming range they were using. They also checked off the appliances in which they were interested and we had a lively follow-up for several months which resulted in many sales."

This Fall the firm expects to stage another cooking school but in a little different manner. They are going to run a contest for all men to enter their favorite recipes. The winners will be selected by a board of judges and asked to prepare their recipes in a cooking demonstration to be held in the store.

The firm's bulk storage plant, about a mile from the store, is located in the heart of East Greenville. An 18,000-gal. tank is located here and additional 30,000-gal. storage is being added. Deliveries are made to the bulk storage plant from the Sun Oil Co. every day.

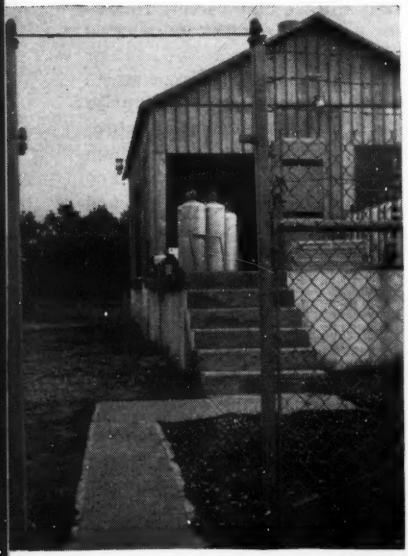
Above—A loaded propane truck backed into this loading rack before the railroad rail at right was installed for protection.



Right—Elevated mounting of hoses saves time, wear and tear on hoses.

DO'S AND DON'TS of LPG Installations —

Odds and ends of good and bad practices gathered from here and there.

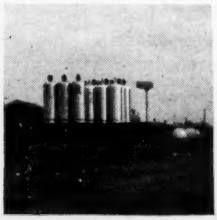


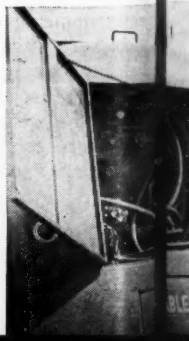
Left — Fence and fire-proof construction protect against tampering and fire.

Circle, right — Pow driven hose re save hours month, make ho last longer.

Below—This is hard on the hoses a the driver.

Below—"It *could* happen here." Storage dock unprotected against theft, fire, or malicious mischief.

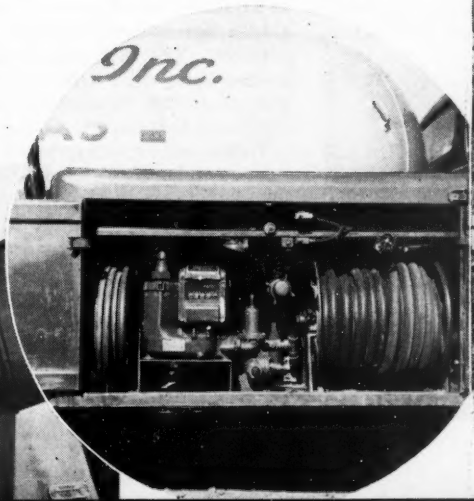




Above—Low cost, but safe. Pump, meter and hose (coiled when not in use) protected by raised concrete platform and heavy "crash posts."

Right—A safe cylinder installation — solid base, regulators securely mounted and covered.

Lower corner—The kind of installation that endangers the entire industry.



Part 2

Bulk Plant Series

Planning the Distributor-Dealer Bulk Plant

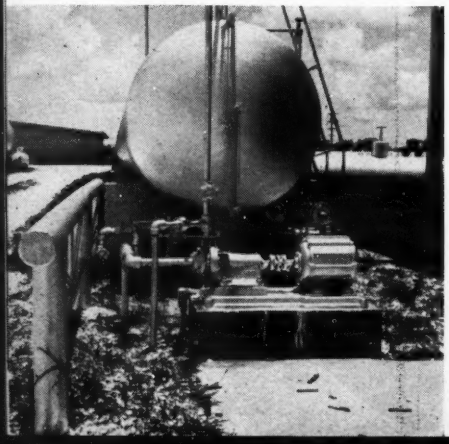
• Fuel Transfer Facilities — Pumps and Compressors

BUTANE and propane LPG must be moved from one container to another on their way from the point of production to the consumer. At least two of these transfers occur at the distributor-dealer's bulk plant. He must keep his fuel moving into and out of his storage tanks in order to keep on operating. It is highly desirable that these transfers should take place efficiently, on schedule, and without interruption, at the lowest possible cost, and without unjustifiable loss of time.

To accomplish this movement of fuel from one container to another, it is necessary to apply pressure in the direction in which the flow is desired. Pumps and compressors are the means of transfer generally employed. Gravity and temperature differentials also enter into the problem, but either of these forces may work with or against the operation of the pump or the compressor, depending on the design of the plant.

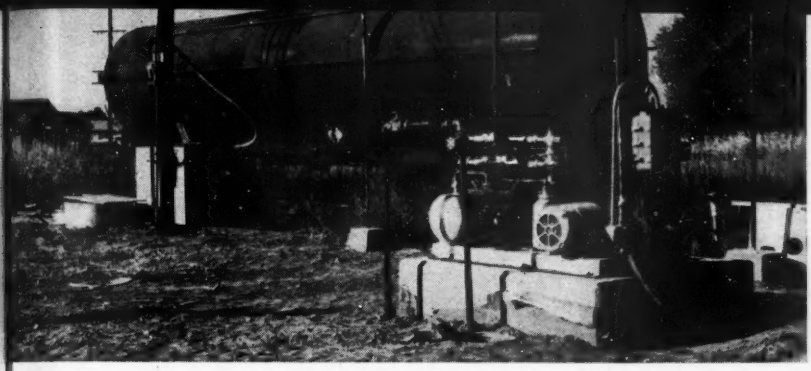
Since adverse effects of gravity and temperature will remain as continuous sources of problems, good plant design requires planning to harness these forces so they will aid in the transfer insofar as is possible. The methods of accomplishing this will be brought out in this and the succeeding article, Part 3 of this series.

There are numerous small storage plants located close to sources of production which have neither pumps nor compressors.



A small pump, installed in large plant exclusively for filling cylinders.

By CARL ABELL



The compressor shows its greatest advantages when unloading tank cars.

Fuel is received by motor transports and is transferred into the storage tanks by the engine-driven pump on the transport truck. For the transfer of fuel from storage to the bulk delivery truck, the pump on this truck also comes into service. This requires either a reversible power take-off in the truck transmission, or piping and valves on the truck which make it possible to pump liquid into or out of the truck tank.

This arrangement presents obvious disadvantages, as it is likely to entail loss of time of the bulk truck and bulk truck driver. Up to a certain point this is not too important, but with increased volume through the plant there comes a time when it is more economical to install a pump or compressor, or both, as part of the plant equipment.

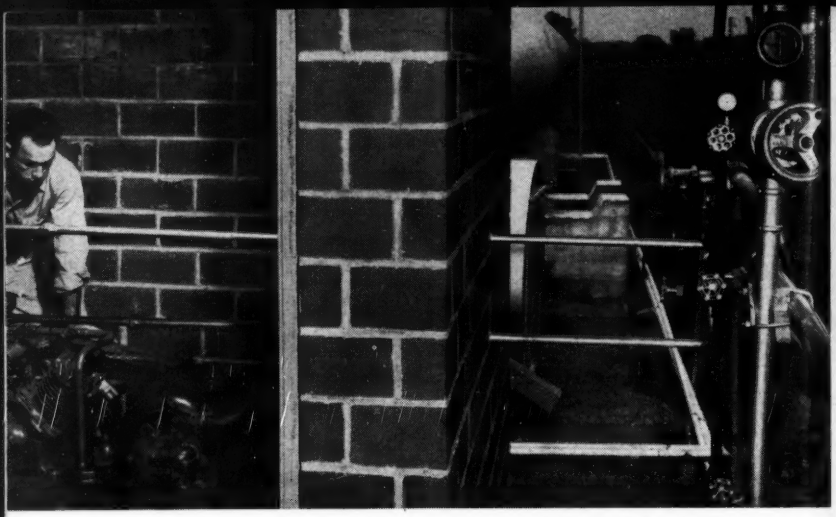
The omission of the pump or compressor is not possible, of course, where fuel is received by tank car, and where cylinders must be filled. Both of these operations require mechanical means of transferring fuel, incorporated in the plant equipment.

A great many of the smaller bulk plants are equipped only with pumps; a lesser number have only compressors to transfer fuel. There seems to be an increasing tendency today to install both pumps and compressors, even in plants of moderate size.

Each unit has its advantages and disadvantages.

By using both in combination, the disadvantages of both may be largely overcome, and the advantages retained. In emergencies, one serves as a standby for the other.

The pump, of whatever type selected, will transfer only liquid, while the compressor will transfer either liquid or vapor. To deliver its full flow, the pump must handle liquid only, free from any vapor bubbles or "pockets." It is also important to keep vapor out of the pump, in order to hold down its operating temperature, and to prevent frequent failures and high maintenance costs which come from



Plenty of ventilation should be provided around and above the compressor.

dry operation. This is sometimes difficult, particularly in cases where the plant has not been designed with proper regard for the problems of pumping, or where the piping on the inlet side of the pump is long. In these cases, the use of a compressor in combination with the pump can be of valuable aid.

While it is possible to handle any fuel transfer problem with a compressor alone, it is generally considered that the pump is faster and more satisfactory for: (1) operating bottle filling plants, (2) dispensing fuel into the operating tanks of vehicles, (3) filling bulk truck tanks.

Generally speaking, the larger the amount of fuel to be transferred, the more valuable the compressor becomes, used either alone or in combination with a pump. The volume throughput at which the investment in a compressor is justified may be calculated for any plant. This volume will generally fall between two and five carloads per month.

The use of a compressor probably reaches its highest economic value in moving fuel into the storage plant from tank cars or from transport trucks. When these transportation tanks are emptied by means of a liquid pump, only the liquid fuel is withdrawn. There may be a small amount of liquid remaining which cannot be removed by the pump, and the tanks remain full of vapor at the pressure existing within the plant storage system, or slightly higher. With the compressor, all liquid may be removed. The remaining vapor is the equivalent of, and can be converted into, quite a number of gallons of liquid fuel, as indicated in *Table 1*.

Most of this fuel may be recovered and put into the storage plant by the use of a compressor, but if the liquid pump is used alone, the remaining fuel goes back to the producer. Whether is it recovered or returned, it is included in the bill from the supplier, who has an inventory gain to match the inventory loss of the purchaser who fails to take the fuel out of the transportation tank.

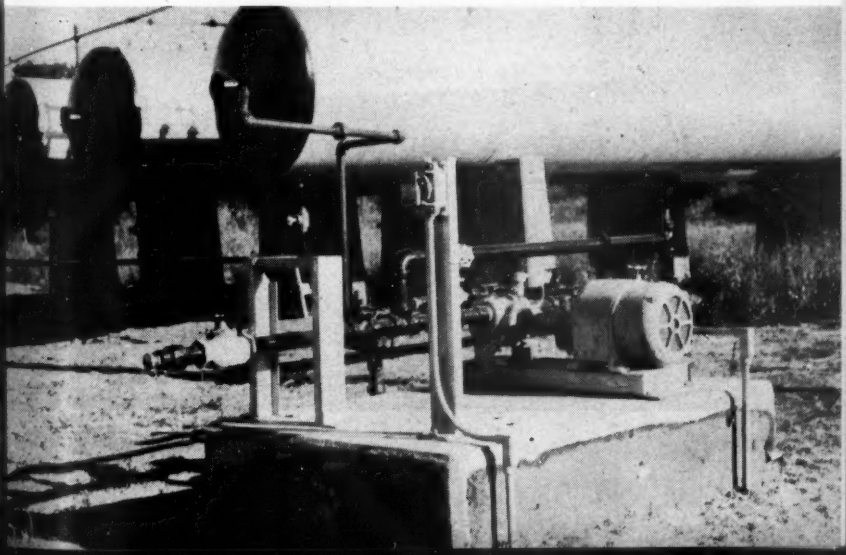
The value of the compressor in this connection, and the economics of its use, may be determined by balancing the cost of the delivered product, and the amounts allowed to return, against the investment costs of the equipment and the cost of the power consumed by the compressor, and the labor cost involved in the extra time required to pull the vapor out of the transportation tank.

In addition to the direct cost of the fuel, there is a loss in transportation cost if the operator fails to take the fuel out. In a 6000-gal. transport, which holds vapor to the average of 200 gal. of recoverable fuel, failure to transfer the fuel to storage requires the operator to make one extra trip in 30 to move the same amount of fuel into his plant. This is a factor of cost which should be understood by every bulk plant operator who hauls his own fuel.

Selection of pumps for LPG operation involves consideration of several factors, of which size is probably the most important. There are various types of mechanism, including the gear, piston, turbine, and centrifugal pumps. They range in capacity from 5 to 150 gal. per minute.

These pumps will not always

A good pump installation—close to source of fuel; good "head"; heavy concrete base.

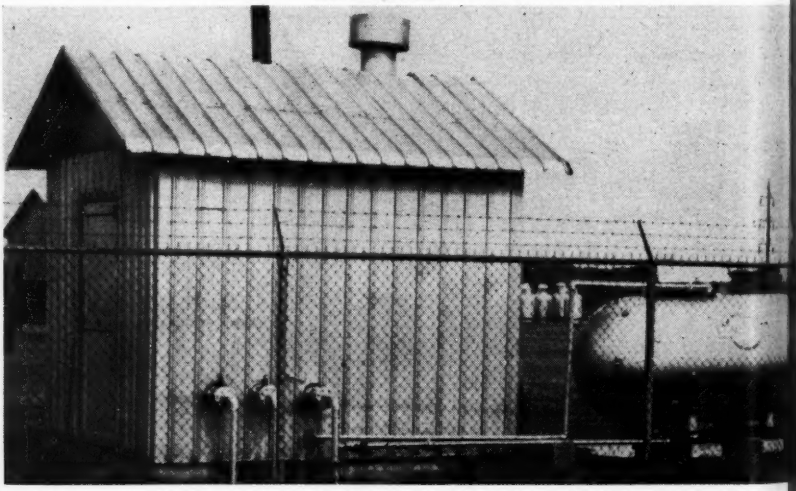


deliver their nominal rated capacity when handling LPG in a plant installation since with even the best designed piping there is always unavoidable resistance in both the inlet and outlet pipes, and the pump may be working against pressure in the receiving tank. These factors cut down the amount of fuel which the pump will actually transfer, and the loss is not comparable in any two plants because of variations in the design and length of the piping, design and adjustment of the various valves, particularly those with spring actuated control, and numerous other variables.

A pump installation which delivers 75% of its rated capacity is unusually good, and a great many show efficiency losses as high as 50% due to the above factors, for which the pump cannot be held to blame. In selecting and installing pumps, these factors should be considered, and a pump selected which has appropriate net capacity for the work to be performed.

Generally speaking, a pump which is ideal for a fast transfer job, such as unloading tank cars and transports, is unsuitable for a limited throughput operation such as filling cylinders, and vice versa. The large pump on the small job is able to deliver only a small fraction of its capacity to the operation in progress. With the gear type, or any other positive displacement pump, the fuel which does not go through the delivery

Liquid trap (tank at right) in long vapor line prevents flow of condensed liquid fuel into compressor.



valve must be returned to storage through a spring-loaded bypass valve.

When using the centrifugal type pump, this undelivered fuel recirculates through the pump. In any case, the power consumption is expensively high in relation to the amount of fuel delivered. This excess power is converted into heat. If allowed to affect the pump, this heating is undesirable—it results in shortened life, more frequent overhauls, and increased pump maintenance costs.

The fallacy of using a pump which is too small on a major operation, such as filling bulk trucks, should be obvious. If it requires 40 minutes to fill a truck tank and another delivery unit comes in for refilling while the first is still connected up, there may be a loss of time, worth several dollars per hour. If the plant equipment includes only one pump, and it is of low capacity, and this is unloading a tank car at the time when bulk trucks come in for filling, the situation requires filling the bulk trucks by means of their own pumps, or diversion of the unloading stream into the bulk truck.

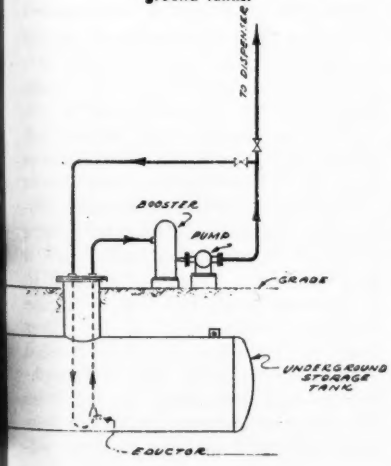
(Either of these expedients may be handled by properly designed piping. This will be included in the next article of this series.)

From the above facts we may conclude that a large plant should have large pump capacity for handling major fuel transfers, and if a cylinder-filling operation is carried on, there should be a smaller pump available with suitable capacity to handle the maximum number of manifold outlets. Actually, most large plants are equipped with multiple pumps, so any number of necessary transfer operations may be carried on simultaneously.

The multiple pump installation offers a further advantage in connection with pump maintenance. If only one pump is included in the plant design, then it becomes impossible to pump out a tank car when the pump is taken down for repairs. This makes it desirable to have either a standby pump or a compressor, and in large plants with high throughput, both should be available.

Where a distributor-dealer operates a single plant of such size that the standby pump is needed, there are many advantages to its instal-

Schematic drawing of Parkhill-Wade eductor circuit for pumping out of underground tanks.



Use this connection when using compressor to return vapor to Storage Tank
Use this connection when compressor is not being used, or when using compressor to return vapor to Tank Car

Posting operating instructions reduces possibility of making mistakes.

lation on a permanent base, connecting it into the piping so either pump may be put in service, or removed, merely by opening or closing the appropriate valves to control the circuit.

With multiple plant operation, this is not always the most economical procedure. With uniform pump installations in all of a company's bulk plants, a single spare pump kept at a strategic location can serve the standby needs of several plants. With compressors also in each of the plants, capable of emergency service for any major transfer operation, and the necessary spares available, there is almost no circumstance which will cause any interruption of fuel transfer due to failure of a pump or a compressor. Operation may slow down a little pending replacement of the unit that failed, but the high investment cost of spares at every plant is avoided.

An increasing number of bulk plants are being equipped with fuel dispensing facilities for the company vehicles, and in some cases for the servicing of other persons' trucks, buses, and taxicabs. This may be operated from almost any pump on the premises without serious interference with other transfer operations.

Filling a vehicle tank is a quick operation and does not require a large flow. Where available, a pump serving the bottling house is ideal for this connection. If a larger pump is used, the vehicle tank is filled before serious overheating of the pump takes place, the power loss is of small consequence, and interruption of other services is short.

Installation of Pumps & Compressors

Pumps and compressors should be mounted on concrete bases. Because of the possibility that leaks may some day develop, it is advisable to install them where air circulation is good. In mild climates they are seldom housed, rain covers and paint being the customary protection against the elements. Where snowfall or frequent rains are a problem, they should be housed in a separate small building, or in the cylinder filling building. In either case, the building should be located in conformity with NBFU Pamphlet 58—not less than 10 ft. from the nearest storage tank; not less than 25 ft. from the line of ad-

joining property which may be built upon, and not less than 25 ft. from the nearest source of ignition.

These restrictions apply to the location of buildings housing transfer equipment. When installed without shelter, the installations may be made closer to the tanks, which is sometimes an advantage. Good judgment should require the same minimum distance, between the location of pumps and compressors and the adjoining property lines, as apply to the installation of tanks.

Air Circulation Necessary

Compressors are air-cooled because prolonged operation develops a good deal of heat. If the compressor is located in a building, it is necessary to provide good air circulation in order to hold its temperature down and avoid excessive maintenance expense. Recommended practice is to provide at least three ft. on all sides and four ft. overhead for circulation. Ample vent openings above the level of the compressor are also desirable during warm weather.

Any building or room housing a pump or compressor should be provided with adequate cross ventilation at floor level. In case of a leak, the fuel vapor should dissipate into the air without opportunity to accumulate. Being heavier than air, the danger area is at floor level.

Outside the limits noted above, pumps and compressors should be located as close to the source of the fuel as possible. Pipes and fittings impose a certain amount of resistance to the flow of any liquid. Suction by the pump reduces the pressure on the fuel in the intake line, which tends to release vapor within the liquid.

This vapor occupies a great deal more space than the same weight of liquid fuel, and the delivery output of the pump is reduced. If extensive vaporization takes place in the intake line, it not only interferes with the pump output—it also results in increased pump temperature, which aggravates the tendency to vaporize the fuel. Liquid is a much better coolant than vapor, so we should look on the pump as a liquid cooled mechanism, and plan our installation to provide that cooling. The design of the intake piping system, and the selection of valves, are very important considerations in connection with the supply of liquid to the pump. *(Part 3 will discuss this in detail.)*

"Head" Is Important

The "head" of the liquid on the intake side of the pump—the elevation of the liquid in the tank above the level of the pump—is important in obtaining vapor-free operation. The weight of the fuel helps to offset the tendency of the liquid to vaporize in the low-pressure zone on the inlet side of the pump, and this effect is in direct proportion to the "head." The pump should therefore be located close to ground level, while the storage tank needs to be relatively high. Six to eight feet difference in elevation is highly desirable.

With low mounted tanks, the use of a compressor in conjunction with the pump is almost imperative. Putting pressure on top of the fuel in the tank from which the liquid is being pumped compensates for the lack of tank elevation. This same factor should be considered in connection with unloading tank cars and motor transports. Having the spur track and the transport driveway at a higher level than the rest of the plant area has definite advantages. Gravity is free, but power costs money.

Applies to Other Installations

While the above discussion applies specifically to distributor-dealer bulk plant installations, the comments concerning plant design features, operating problems, and location of the transfer units are equally pertinent in connection with any other storage installation required for service stations, industrial storage facilities, or used in connection with utility gas operations. In some of these groups, the installation will include underground storage tanks. This poses a specific problem in connection with transfer equipment as there are definite hazards surrounding the location of butane-propane pumps in pits, and such installations should be avoided.

With the pump located aboveground, it is necessary to substitute something else for the effect of gravity in supplying unvaporized fuel to the pump. This may be accomplished with a compressor, but the satisfactory functioning of the pump requires either considerable extra attention to the operation of the compressor, or the installation of automatic pressure control equipment.

The alternative method, which is not only satisfactory but simple, is the use of the Parkhill-Wade eductor method, which works on the same principle as the feedwater injection system of the steam locomotive. With this type of installation, the pump is located aboveground, with its discharge stream divided so about 50% is directed through the "eductor" located in the bottom of the storage tank.

The force developed at the eductor jet picks up extra liquid fuel, and carries a full stream up into the piping system, maintaining pressure, instead of suction, throughout the intake piping. This system requires a pump and motor installation proportioned to handle the extra fuel which operates the eductor, but it avoids the difficulties encountered in trying to raise boiling liquid by suction. *(This is a patented circuit, the details of which are available from Parkhill-Wade, Los Angeles.)*

Operation of Pumps and Compressors

No pump or compressor should ever be operated against a closed circuit. In order to prevent damage or high maintenance costs from this and other operational errors, a definite routine should be established for each transfer operation, with each step to be performed in a definite order. This operating routine should be put down on paper, and all employes handling fuel transfers should be familiar with all procedures involved in their various duties. Some oper-

ators follow the very sound practice of posting these instructions at the transfer units. As an additional safeguard against errors in operation, the liquid and vapor lines in many plants are painted in identifying colors. (This is standard refinery practice, and could profitably be adopted by the entire L. P. gas industry.)

Pump starting procedure differs in various installations, due to variations in piping, valving, and relation to other parts of the storage system. Some installations are designed so there is never any vapor in the pump. In other plants the piping arrangement is such that there is vapor in the pump, or in a portion of the intake line, after the pump has been standing idle for a period. The pump is designed to transfer liquid and to be cooled by the stream of liquid.

If operated for more than a very short period without liquid, it becomes very hot, and this increases the difficulty of establishing proper liquid flow, in addition to wearing the working parts and damaging the bearings and seals. Eliminating the possibility of starting the pump when full of vapor, or drawing a slug of vapor in from a pocket in the intake line, is partly a problem of piping. In some plants, the intake piping can be designed so any vapor which forms at the pump or in the line will automatically return to the storage tank. Where this cannot be accomplished, it is still possible to include a suitable vapor return circuit controlled by a hand valve, whereby the vapor may be eliminated from the pump intake. Clearing the line of vapor should be a regular step in the starting routine. *(The above piping details will be covered in Part 3.)*

Pamphlet 58 specifies (Paragraph B-13-d) that "A man shall be in attendance at all times while the tank car, cars, or trucks are being unloaded." This is a safety precaution in case of a ruptured hose or any other extensive leak but another very logical reason for having him present is to stop the

Table 1

LIQUID EQUIVALENT OF VAPOR LEFT IN TANK CAR

At pressure and temperature shown—Actual loss when not transferred

Temp. Deg. F.	BUTANE Pressure, Lb. Gauge	BUTANE Equals Gallons*	PROPANE Pressure, Lb. Gauge	PROPANE Equals Gallons*
20	6.3 Vac.	39.5	40.8 lb.	163.0
40	3.0 lb.	58.9	63.3 lb.	222.0
60	11.6 lb.	81.7	92.4 lb.	291.0
80	22.9 lb.	111.0	128.1 lb.	380.0
100	37.5 lb.	151.0	172.0 lb.	468.0
120	56.1 lb.	197.0	197.0 lb.	592.0

**This represents additional recovery made possible by Brunner L. P. gas unit.*

pump immediately after the shipping tank is emptied and the liquid flow to the pump is replaced by vapor.

The operation procedure should include lubrication of any points on motors or compressors where such attention is recommended by the manufacturers, and at the intervals specified. Compressors are particularly subject to damage from failure to provide lubrication—even more so than are automotive engines. Checking the crankcase oil level should always be a routine step preceding the starting of the unit.

Where there is a possibility that liquid fuel may condense in the vapor lines connected with the compressor, good design requires some form of condensate trap for its elimination. These traps fill up in the course of time, and the liquid must be removed, or it will flow into the compressor. If the entrance of liquid is slow, it will pass on through the cylinders, with no apparent immediate damage. But this is very misleading. The liquid fuel washes the oil off the cylinders and pistons, and rapid wear is inevitable.

Danger of Valve Damage

Of course, if the liquid comes through in large quantities, there is grave danger of damage to valves, or even of cracking of cylinders or pistons as the result of sudden chilling. Emptying of the condensate traps should be a part of the regular plant routine. The amount of condensation is much greater at winter temperatures below 32°F. (the boiling point of butane, which is always present to some extent in commercial propane). The drainage schedule should be established with this factor in mind.

Maintenance of Pumps & Compressors

Good design of the plant piping, and correct operating procedure, are the first and most important steps in the maintenance of pumps, compressors, and their drive motors. Following these comes lubrication. Because this will be performed by the operator in charge of the units, it becomes a logical part of the operating procedure, and for this reason it is mentioned here.

Wear occurs in the bearings and packings of pumps, and on the shafts which contact the bearings and packings. L. P. gas pump bearings are precision fitted, and it is no mental-butcher's job to recondition them. Bearing replacement should only be done in a shop where the proper precision operations can be performed by a mechanic with the proper training tools, and skill. In many cases it will be good insurance to get an exchange pump from the manufacturer, rather than to gamble on an outside job.

Pump packing is the means of sealing the pump against leaks. Adjustable seals should have periodic attention to prevent leaks and formation of leak channels. The latter can be very troublesome in leading to recurrent leaks after the first failure has been temporarily checked. When replacing packings, it is of the utmost importance that the correct type be used. The safest procedure is to procure the packing

recommended by the pump manufacturer. It will have the proper density, conformity, and resistance against the solvent action of the fuel being pumped.

With the compressor properly protected against the intake of liquid, and lubrication carried out according to manufacturer's recommendations, the principal need for maintenance comes from wear in valves. Most compressors are designed so replacement of valves and valve plates can be completed in a few minutes. Cylinders, pistons, and piston rings also wear out in the course of time. Lack of compression shows up on the gauge readings.

The operator should be familiar with the normal readings when the compressor is in good condition, and the tests specified for that particular compressor are performed. The manufacturer's instruction book, which should be kept handy, tell how to perform the tests, and what the tests indicate.

Compressor bearings wear out just as engine bearings must eventually fail, and the same treatment is necessary. Bearings should be replaced as soon as they start to get loose. Failure to do so brings the risk of scoring the crankshaft, which puts the compressor out of commission for a longer period, and may seriously handicap the operation of the plant.

It is not possible to understand all of the problems connected with the operation of L. P. gas pumps and compressors without also having a fundamental knowledge of the principles and operation of the various valves and controls which are included in the storage and piping systems. The functioning of these units, and their effect on the flow and control of the fuel in its liquid and vapor states, will be covered in the next article, Part 3, of this series.

Sol Fligelman Dies; Headed Consumers Gas Co. in Minn.

Sol Fligelman, founder and president of the Consumers Gas Co., Detroit Lakes, Minn., died at Mt. Sinai hospital, Minneapolis, June 4, from a cardiac condition. He had been in poor health for the past five years.

A pioneer in the bulk delivery of L. P. gas for rural homes, Mr. Fligelman is credited with being the originator of metered service through consumer bulk tanks. His company was also one of the first in the Minnesota area to promote the use of propane as motor fuel.

His company, originated in 1931 to provide utility gas service for the city of Detroit Lakes, was expanded under his guidance to provide "beyond the mains" service for rural residents through a wide area of west central Minnesota and North Dakota.

Carrying on the business are his brother, Henry, of Detroit Lakes, who has been an associate since the early days, and his sons, Stephen H., of Detroit Lakes, currently president of the Minnesota Petroleum Gas Assn., and David, of Moorehead, Minn.

Management

What About Dealer Financing?

Expect your banker to help with short term credit but don't look to him for long term loans.

YOUR banker has a stake in the future of the LPG industry. He is the individual to which the dealer can turn for financial advice and assistance when in need of working capital, financing of expansion and fixed assets, or assistance in handling credit obligations incurred in the conduct of his business. Practically all of the LPG dealer's financing operations will fall into these three categories.

GEORGE T. CHANDLER

It is axiomatic that stockholders provide working capital sufficient to finance the current assets of the business at the low point of a seasonal cycle. Excess during the seasonal cycle are considered bank eligible credits.

In practical operation this would mean that the seasonal appliance inventory of the LPG retailer could be handled through a bank loan.

The large accounts receivable accumulated in the L. P. gas business from April to August might well be termed seasonal inventory which, for convenience, is stored in the customer's tanks and certainly is a bank eligible credit if properly handled.

Loans for the purchase of delivery equipment and other transportation are not strictly working capital, but are short enough term credit that, if properly handled, are good bank eligible loans.

Credit obligations arising from the conduct of the dealer's business can usually be handled by the dealer and his bank. The banker is trained in the retailing of credit just as the LPG dealer is trained in the retailing of gas and appliances and the dealer should no more attempt to run a financing business than the banker would attempt to run an LPG retailing establishment.

Sale of consumer durable appliances necessitates financing and can be worked out with a bank on a normal financing plan that has been proved mutually acceptable.

Credits arising from the sale of specialized L. P. gas equipment, such as tractor conversions or storage tanks, are special in their handling and call for negotiations

By GEORGE T. CHANDLER*
Vice President, First National Bank in Pratt, Kan.

directly with the individual dealer and banker. But if the maturity dates are not too far in the future and there is adequate margin in the security they can be handled by a commercial bank.

Financing of expansion and fixed assets falls in the classification of long term money, which is outside the field of commercial banking. Banking is a business to extend short term credit, not to furnish long term investment. You would not borrow money to build storage tanks if the note were due on demand and neither will a bank make long term investments with depositors' money that is due on demand.

All businesses need more long term money but it should be supplied by stockholders and not by creditors, though I well realize that this goes counter to the human desires of not diluting the present stockholders' interests. Only when a company has many years of good earning records should it consider the issuing of long term obligations such as bonds or long term notes.

Where then, is such long term money available?

Primarily from life insurance companies, but they can afford to deal only in large amounts because of the cost of analysis of businesses. Examples of such firms requiring long term credit might be railroads, airlines and oil companies.

There is generally no place for small long term loans, particularly to a new industry. There are no other lenders of a public nature than the government. If you wish to borrow from individuals they will consider themselves investors and justly want more than only interest for their risk involved. They will not participate in the losses and only to the extent of short term interest in the profits. However, if you can furnish a private lender adequate security you will be able to borrow long term money at modest rates. The key is *adequate security.*

Summation

In summation I would say that you may expect your banker to furnish your seasonal short term credit needs and furnish help in financing rolling stock. He may also be called to help finance your consumer appliance sales.

Don't ask your banker for long term loans; you'll only embarrass yourself and the banker. Don't expect long term loans from private individuals unless you are ready to furnish adequate security or pay premium risk rates.

You can expect, however, to finance capital increase for expansion from your stockholders.

Above all, keep a good record. Businesses can go broke through lack of adequate records but I question whether any have ever done so through keeping more than adequate records. Don't try to kid yourself or your banker. A banker will go along with a much thinner deal if you have a record system that permits accurate and comprehensive analysis of your operation.

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*Condensed from a talk delivered by Mr. Chandler before the L.P. Gas Management Course at University of Kansas in April.—Editor.

Montana LPG Boom!

Part II

IN the June issue we presented the first of a two-part article covering the experiences of roving correspondent James Joseph in a trip through Northern U.S. and Canada. Mr. Joseph interviewed many LPG gasmen for his story, the first chapter covering a survey of the booming Canadian industry. The second part covers his survey findings in Montana which uncovered dealer hopes and activities.—Editor.

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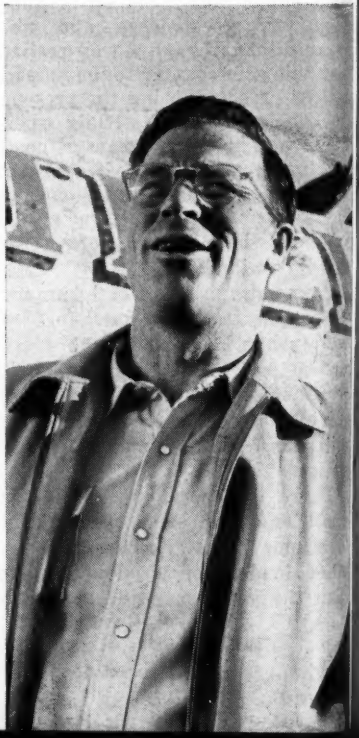
SALES are Booming in Montana! In Great Falls we stopped in to see Union Natural Gas Co.'s operation. Despite its name, Union deals in propane, as its slogan, "Natural gas beyond the Mains" indicates. Office manager John Kurtz told how Union, which handles Uni-Gas, has recently converted several oil drilling rigs around Great Falls to propane.

One unit was a Hercules engine, the other a Buda. Light plants have opened new fields for Union Natural Gas Co. In the first place, the firm sells the D. W. Onan light plant; secondly, it converts other light plants wherever possible. Most of the Onan plants are being installed with 500-gal. tanks. Operating out of Great Falls for Union is a 1400-gal. tanker and two cylinder trucks.

There are three other Union bulk plants in Montana: Billings, wiht 20,000 gal. storage; Columbia Falls, 18,000; and Boseman, with

By JAMES JOSEPH

Norman Johns, owner-manager, of Steele and Co., Great Falls, Mont., beams to reflect the Montana LPG boom!



Union Natural Gas Co. headquarters office and plant at Great Falls, Mont.

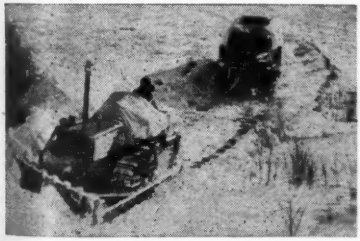
18,000 gal. storage. Storage tanks at Great Falls hold 18,000 gal. Speaking of light plants as year around load builders, Mr. Kurtz thinks too many LPG dealers are overlooking the potential here. The average air-cooled, 3000 watt plant uses ½ gal. per hour. There's a lot to be said for the cleaner, more efficient operation of light plants operating on propane or butane, than on other fuels.

Incidentally, Fred Jones, Union Natural Gas Co.'s owner, is state president of the Montana LPG Assn.

Down the road from Union, is George Steele and Co., with branches in Lewiston, Idaho; Billings, Butte and Hamilton, Mont. All handle the trademarked "Steelgas." *(See footnote.)*

Steele and Co. concentrating on ranch applications, has some 500 ranchers on its Great Falls routes and about 150 intown customers. Newest application, of course, was Steele's supply of bottled LPG to

Bulldozer clears road for Steele Co. truck as it breaks way to isolated ranch near Great Falls, Mont.



Snow piles up against Steele Co. truck near Great Falls, Mont., which shows difficulty Northern U.S. dealers must encounter to keep business booming.

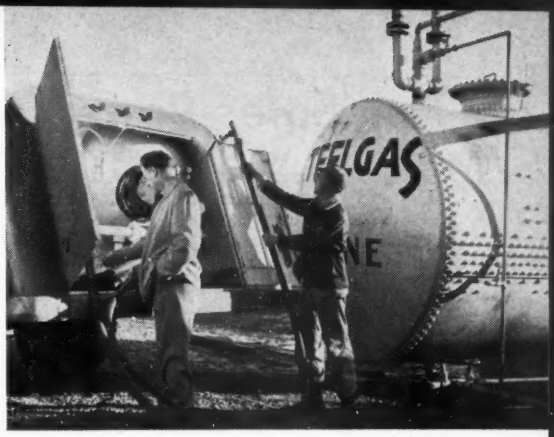
Cylinder filling installation is compact, well organized at Union Natural Gas Co.'s Great Falls Plant.

cloud seeding contractors last summer. The dealer hauled in six to twelve 100-lb. cylinders at a crack to fuel silver iodide burner-generators. Cloud seeders were using LPG at the rate of nearly $1200 a month, and Steele Co.'s monthly share of this was about $450.

Steele and Co.'s Great Falls branch has increased sales "double and triple" every year since opening in 1946. The company is on the Montana airwaves every day, with spot announcements over the three Great Falls stations — KMON, KFBB and KXLK. And its territory reaches clear to the Canadian border.

Steele and Co. has found that ranchers can be converted to LPG solely on the basis of price. It charges no rental on cylinders, but tries to sell customers, especially ranchers living in isolated places, a 1000-gal. tank. There's no extra charge for distance to these bigger customers.

Owner-manager of the Great Falls Steele and Co. is Norman Johns. He recalls how last winter his haulers came to the rescue of one of Montana's biggest ranchers, Wm. Steinbach. The Steinbach ranch is about 70 miles west of Great Falls and it has 1150-gal. storage. At the time Montana, with



Filling tanker from storage tanks at Steele and Co.'s Great Falls, Mont. plant.

one of the heaviest snowfalls in years, was pretty well snowbound. The Steinbach ranch, which is solely dependent upon LPG, was running low. The dealer knew this, but getting through to him was another question. Finally, when the tanks were empty, Steinbach rode on horseback to a neighbor's house and called for gas. His neighbor, with access to a road, got out his snowplow and began clearing six miles of road into the ranch tanks.

Steele and Co.'s driver arrived at 11 a.m., and followed behind the plow until 6 p.m. that night. It was dark then, but the LPG was finally delivered, the pumps flowing at about 6:30 p.m. Driver Chet Halley got back to the Great Falls office at 11:30 p.m., dog-tired from the steady grind which had begun early that morning.

"It was routine," says Halley, "the kind of jobs we do all winter long. Besides, it was a 'mild day,' about zero or a little below." But Halley admits he wore his parka and flying pants.

All the dealer's customers aren't big ranchers like Steinbach who runs 4000-5000 head of cattle and 12,000-15,000 head of sheep on three ranches covering 25,000 Montana acres. But service, good weather or bad, has made ranchers steady, year-around customers—even if it takes a snowplow occasionally to deliver the goods.

(Steele Co. branches at Billings, Lewistown, Harlowton, and Jordan, Mont., have been purchased by Midland Propane Co., Billings, Mont., since material for this article was obtained.—Editor.)

The 'Sales Power' of a Woman

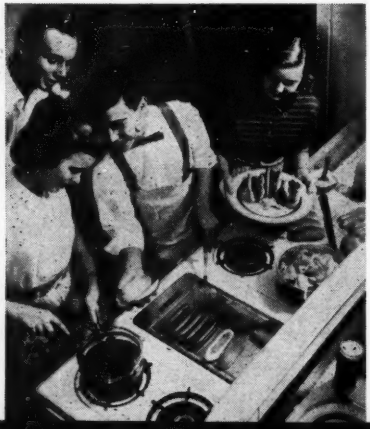
Home Service Consultants recommended for LPG dealer groups

By JANE TIFFANY WAGNER
Home Service Editor, Gas Appliance Manufacturers Assn.

HEED that famous advertising warning and "never underestimate the power of a woman"—especially when it comes to selling your women customers on the integrity of your firm and its LPG products. Confidence and loyalty—which in turn build goodwill—are something which can be extremely valuable to the L.P. gas dealer and his salesmen. Your best bet in selling these intangibles to your women customers is to employ a home economist, or as she is often called, a home service consultant.

For more than 15 years my work has brought me into close association with home economists, and I have seen how effectively they build confidence in products. But don't take my word—just look around and notice how many gas utilities have established Home Service departments. What these women do for the utilities they can do for the bottle and bulk storage gas dealers; the need for the feminine touch is as great in the large rural markets as in the urban areas—perhaps even greater.

Although you, as an individual dealer, may readily see how the services of a home economist could be very helpful in your work with women customers, it may not be feasible for you to make such an addition to your staff. Then the thing to do is to discuss the possibilities with your dealer groups or with your state and regional LPG dealer associations. A home service economist could be employed by your dealer group or association. Many of her activities would benefit you as an individual dealer as part of her time under a group program would be spent in various



Building L. P. gas customers of the future—school time is fun time when the home service consultant employed by an LPG dealer group or association can get boys and girls to enjoy being at home with the L. P. gas range.

MISS WAGNER

Jane Tiffany Wagner, author of this article, has been a "silent salesman" for your gas appliances through her activities with the Gas Appliance Manufacturers Assn. When you see a story about gas appliances in your local newspaper, chances are that it had its birth in her department. Her "One-A-Day Home Hints" are sent every month to more than 500 women's editors and women radio commentators. Miss Wagner also produces a monthly bulletin, "Designed for Living," prepared for home demonstration agents for use in their work with rural homemakers. Twice a month she turns out a special feature of a different gas appliance for the 500 women's editors. She also serves GAMA as a consultant on all phases of home economics. Her background includes that of Home Service Director for Consolidated Gas Co., Servel, Inc., Standard Brands, Inc., and NBC. Miss Wagner has also served as Food and Home Service editor of American Home magazine. Recently she addressed the annual sales convention of Suburban Propane Gas Corp., Whippany, N.J. on how home economists help build appliance sales.

communities or counties where she would act as the home service consultant for individual dealers. Thus you would get the services of such a consultant but the expense would be shared by a group of dealers.

Setting up a home service department under these circumstances should begin on a small scale and develop over a period of about two years into a completed plan. The choice of personnel must be on a very high level.

The basic factors your group or association should consider in employing a home service consultant follow:

(1) She must be a home economics graduate of an accredited college—with a major in household equipment and techniques of food preparation, along with some experience in journalism and public speaking.

(2) The first requirement presupposes that she has had some actual business experience before she takes on her job with you or your group or association. The woman you choose for this work should have enthusiasm and an insight into what women want and need.

Above all, she must have tact and personality. It has been found that women do not always react well to a consultant who is too young or too glamorous, or both. The women wonder, even though they are not always right, what such a girl knows about cooking and using household equipment. So I would suggest that you choose an attractive person, of course, but one on the wholesome, cheery side.

(3) She should be capable of planning bulletins and booklets for consumer use. This can be an im-

This graphically demonstrates how the LPG home service consultant can help the busy housewife plan an oven meal. By setting the clock control on this "CP" gas range she can take in a meeting of her church group, feeling comfortable with the knowledge her food will be ready to serve when she returns at supper time.

portant part of her work in the beginning. You, as an individual dealer, will profit by having this material to distribute to new customers or to prospective users of your products. She should be capable of writing articles for house organs and be able to judge and suggest recipes that benefit Mrs. Consumer. In short, she should be able to assist in the preparation of all promotional literature which falls normally within the scope of her responsibility.

(4) She should be alert to the use of publicity facilities such as radio and TV, newspapers, public relations organizations, local functions, church organizations, women's clubs, granges, etc.

(5) She should be able to work with salesmen on a consignment program in schools, colleges and community groups within a given area. This also means that she must be able to talk well in demonstrations, pointing out the features of domestic appliances such as gas ranges, refrigerators, clothes dryers, water heaters, and incinerators. She must of necessity know how to bring out the advantages of L.P. fuel and equipment to the homemaker.

(6) In order to do her job properly, your home service consultant will require an office and some secretarial help and if possible a test kitchen. It is to this office that you send for the special help which you may need. A home service consultant working with and for a group will have to assign part of her time to field work. For this, it will be essential that she has a car in which to get about and which she can drive herself.

(7) The schedule of field work can be planned so that she covers the district at least twice a year and the schedule should be worked out with careful planning so that

she works systematically and gets into the entire territory.

It will be up to the individual dealers to plan for the consultant's visit so that she meets as many of his customers and prospects as possible. This could be done by inviting them to a demonstration in a school or church hall and it may be possible to work with the local county Home Demonstration Agent in making the consultant's talk an asset to your particular community.

Once you embark on this program, be sure to arrange for local publicity, assign a few people to talk about the event in advance. It may be well to compile a list of questions which you find are most often asked and give them to her in advance—then leave time on the program for a question and answer session.

If given all possible help, she will assist materially in building greater appliance sales and winning the confidence of your customers.

Talk about the possibility of having a home service consultant at the next dealer group meeting you attend or bring it up as an association project. It may be a move which will bring you surprisingly profitable results.

As home service editor on the GAMA staff, Jane Tiffany Wagner does for GAMA what a similar home economist could do for LPG dealers in their own communities. Here Miss Wagner, right, discusses modern automatic gas clothes dryer controls with an interested homemaker in a demonstration kitchen, similar to one the dealer could include in his showroom.

Quebec Propane Dealers Study Safety; Elect H. C. Panet Head

The year-old Propane Gas Distributors Assn. of Quebec recently elected officers and directors for the coming year and formed a committee to study safety rules and regulations and the possibility of group insurance for the 79 members. There are 140 active propane distributors in the province of Quebec, Canada.

H. C. Panet, Richlieu, was chosen president while Lionel Meagher, Joliette, was named first vice president; Guy Marchand, Valleyfield, second vice president and M. Blanchard, St. Vincent de Paul, was chosen secretary-treasurer. Directors named included Donat Picard, Granby; Germain Dextraze, St. Johns; R. Rajotte, La Providence; H. Tanguay, Cap de la Madeleine; H. Denis, Beloeil; Yvon Breton, St. Hyacinthe; Rey. Bouchard, Rosemere; and Sarto Gaulin, St. Cesaire.

Specify REGO SAFETY RELIEF VALVES

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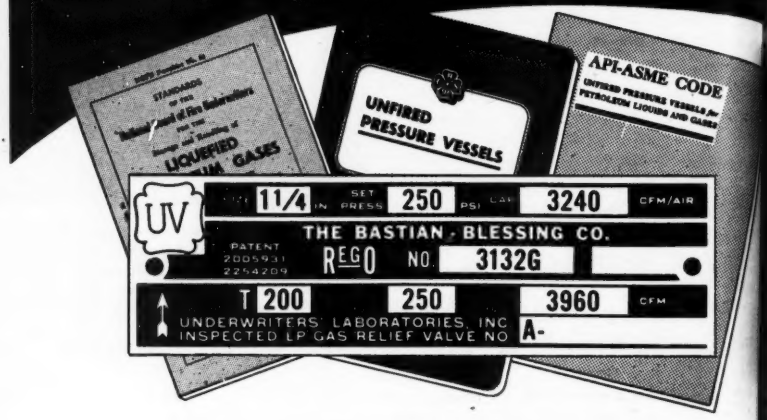
STANDARDS of the National Board of Fire Underwriters for the Storage and Handling of LIQUEFIED GASES
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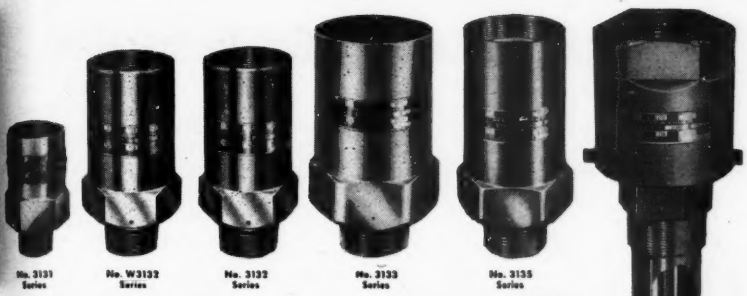
RegO Safety Relief Valves fully conform to the regulations as set forth by:

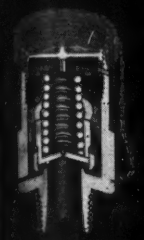
NBFU Pamphlet No. 58
ASME Boiler Construction Code
API-ASME Unfired Pressure Vessel Code

Each RegO Safety Relief Valve designed for use on ASME or API-ASME code tanks now carries the following required data:

- Official symbol to denote ASME standard
- Pipe size of valve inlet
- Set pressure in pounds per square inch
- Capacity in cubic feet of air per minute
- RegO Trademark and Bastian-Blessing Co. name
- RegO valve number
- "Container Type" for which valve is designed
- Start-to-discharge setting in pounds per square inch
- Rate of discharge in cubic feet of LP-Gas per minute

Every RegO Safety Relief Valve carries the important data listed above on the label—look for it to be certain you are getting safety relief valves that conform to *all* requirements.





- RegO "Pop-Action" design allows valve to open slightly to relieve pressures only slightly in excess of set pressure. Further increase in pressure causes valve to "pop" open immediately, thus relieving excessive pressure quickly.
- For applications where required, RegO Safety Relief Valves are designed so that the discharge can be piped away.
- Caps to provide added protection against rain and dirt are available as standard accessories.

Valve Series No.	Inlet	Applications
No. 3131	3/4"	Designed for use on small aboveground and underground bulk containers, either as the primary safety device or as supplementary relief valve.
No. W3132 No. 3132	1" 1-1/4"	Designed for use on larger aboveground and underground storage containers. Also for bulk plants, industrial plants, tank trucks and similar applications.
No. 3133 No. 3135	1-1/2" 1-1/4"	Designed for use on large storage containers, skid tanks, transport trucks and similar applications.
No. 3134	2"	This series of safety relief valves is designed for use on very large containers and transport trucks.

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Tell 'Em and Sell 'Em Gas Incineration

Steady fuel load and full-profit appliance for LPG dealer who promotes gas-fired incinerators

BY J. G. DIERKES

President, Incineration Div., Bowser, Inc., Cairo, Ill.

A modern, gas-fired appliance that builds a steady fuel load for the L. P. gas dealer and provides him with a "full-profit" appliance is the gas-fired incinerator. The market for this incinerator has hardly been scratched, for while there are thousands of present incinerator customers, there are still more than 27,000,000 homes in the U.S. enjoying automatic heat but still trudging out to "Old Smoky," the garbage and rubbish can at the end of the lot.

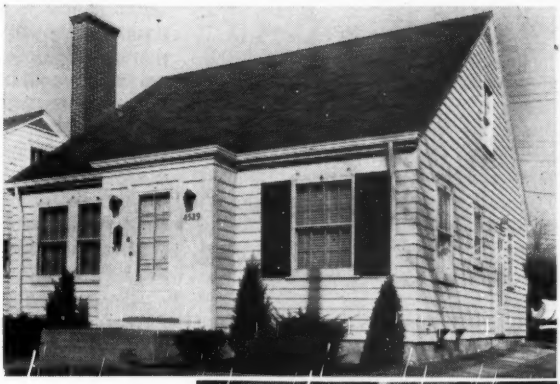
As a steady load factor, the automatic gas-fired incinerator compares favorably with the gas range or water heater. For example, taking an average family of four persons, what might the dealer expect in the way of a fuel load for their gas-fired incinerator?

It has been born out in a number of surveys that a safe figure is 1000 cu. ft. of gas or 15 therms per month per automatic gas-fired incinerator for such a household. That would mean a load of about 14 gals. per month—in many cases more favorable than a domestic cooking load. This good base load is even further increased during the summer months when more "green" food scraps, etc., are consumed in the incinerator, and the proportion of combustibles correspondingly decrease. Naturally, this takes more gas.

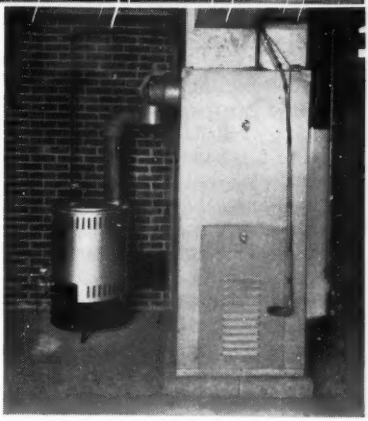
Even at 15 therms per month, the cost in the suburban area to the user is usually favorable compared with the cost paid for garbage and rubbish hauling service; add to this the convenience and sanitary advantages when an automatic incinerator serves that home.

In those areas where consumer bulk storage prevails the added load factor gained through selling gas-fired incinerators will greatly assist the dealer in selling increased LPG fuel storage facilities to the consumer. Sales of this load-building appliance will also greatly assist those dealers presently educating their bottled-gas customers in making the switch to bulk storage to provide adequate and uninterrupted fuel supply for their cooking, heating and incineration needs.

The gas incinerator has become a necessity in the modern home; a "must" in the automatically heated home, and it does the job of daily garbage and rubbish disposal in the home far more satis-



The average suburban or rural home owner is an excellent market for gas-fired incinerators. Here is a comfortable basement home in Indiana with a "heater corner" located in its basement showing multiple use of gas-fired units including a furnace, hot water heater and on the left, the Bowser gas-fired "Incinor."



factorily and completely than any other means available now.

The automatic gas-fired incinerator fills the need for sanitation in modern living, which has been a void for so long, and is the one gas appliance which is not subject to intensive electric competition. It is an established fact that it requires fire in the shape of a flame to destroy moist, damp and wet garbage and rubbish. No other means can do that job as effectively and safely as can the gas-fired incinerator. It furnishes a complete disposal service inside the home and gives complete independence of weather, burns garbage and trash, wet or dry, is trouble free in operation, and always available for service.

It must be borne in mind, however, that it requires sales effort to acquaint your customer with the many advantages, service and convenience which is theirs through the use of an incinerator. The L. P. gas distributor and dealer is in a particularly favorable situation as regards customer contact for the purpose of selling gas-fired incinerators.

The L. P. distributor and dealer is in periodic personal contact with every one of his gas customers and usually knows ahead of time what appliance and equipment program the customer has in mind. Through this periodic personal contact, the

"Old Smoky" at back of the lot.

L. P. distributor or dealer is in a favorable position to suggest the purchase of a labor saving, sanitary gas-fired incinerator, and not only make a profit from the sale of the appliance, but insure to himself the additional base load on his gas lines. Through the satisfactory service given by the gas-fired incinerator, that customer's home has become further solidified for continued and expanding gas service.

The way to sell gas-fired incinerators is to dramatize the need for it.

Adequate sales literature and sales help, including free ad mats, are available to the merchandiser of gas-fired incinerators. Gas-fired incinerators require selling at point of sale, which means you cannot sit idly by and wait for people to ask for it.

A review of your own sales records and experience will aid you in formulating a sound selling campaign to be directed to your customers, and these should be followed up with regular sales solicitations and demonstrations.

Dispel the habit of disposing of trash and garbage in the old way. Many of your customers would gladly change their old habits if they had complete information of what the gas-fired incinerator will do for them.

Tell them that the gas-fired incinerator provides the easiest possible method of safely disposing of garbage and rubbish.

Tell them about the modest initial, installation and operating cost.

Tell them how the gas-fired incinerator protects property values by removing the feeding place of rodents, etc.

Tell them how gas-fired incinerators eliminate fire hazards from burning rubbish out of doors.

Tell them how the automatic gas-fired incinerator, when installed in the basement of the home, helps keep the basement dry and provides a major contribution to the cleanliness, sanitation, comfort and convenience of the home.

Tell them about the thousands of users of automatic gas-fired incinerators who are happy every day they have this service in their homes.

A recent survey by a gas company, which has been merchandising gas-fired incinerators since they became available after World War II, confirms customer satisfaction from the use of the gas-fired incinerator. Fifty customers were asked for a frank expression as to what they thought of the modern

incinerator and how they liked its service, and 48 of these customers expressed their satisfaction in terms ranging all the way from "satisfactory" to "finest thing we have in the home," "wouldn't do without it," etc. Customer 49 had a complaint which indicated a mechanical adjustment was needed and after the adjustment was made he was thoroughly happy. Customer No. 50 said he had no complaint, which was a negative way of admitting the service was O.K.

In another company test, 42 gas-fired incinerator customers were checked and the company received an enthusiastic reply without a complaint from all of them.

Due to the excellent service rendered by the modern gas-fired incinerator, every one of your customers who purchases an incinerator from you becomes a salesman on your staff because they like the service and convenience of the automatic incinerator in their home and are inclined to show the unit and also talk about it. Your incinerator customer is truly "a use-the-user" source of additional incinerator business.

Work with builders: In developments beyond the city limits where there is no garbage collection, builders welcome the idea of including an automatic gas-fired incinerator in the homes they build to make them more salable.

Builders of new homes purchase more gas-fired incinerators than any other single group and the suburban home builder and home owner has less garbage and trash removal service available than has the home within the limits of an incorporated city.

Therefore, the L. P. gas distributor and dealer has many choice prospects, not only among the new home builders, but owners of homes already established, and many complete communities, which suffer from improper sanitation, due to spasmodic pick-up service of garbage and trash.

Then there is the institutional and commerical market, which includes schools, clinics, hospitals, roadhouses, motels, banks, etc., all of which need gas-fired incineration and most of which are just awaiting the necessary information from their L. P. gas dealer that what they want is available.

The cost of installation is insignificant, and most homes and buildings have adequate flues to accommodate the incinerator and it is very seldom necessary to run an entire new gas line to service the incinerator.

The unit increases the number of your really satisfied customers and increases your profits, not only from the sale of the appliance but from the continuing gas load it provides on your lines after the sale.

Gas-fired incinerators offer you full profit on the sale of the appliance, as there is no trade-in problem.

It is no accident that the production of domestic gas-fired incinerators for the 12 months ended Dec. 31, 1951 was more than four times the annual production for the year ended Dec. 31, 1949. This indicates that the market demand is here now.

"We Quote"

Significant remarks made by industry leaders before recent conventions concerning topics of current interest to LPG dealers.

"Encourage new manufacturers to enter the LPG field"

. . . says Harry J. Holbrook, National Production Authority, Washington, D.C.

HOLBROOK

"In spite of the fact that critical materials for production of consumer items to be used by L.P. gas have been in short supply we find ourselves very definitely in a buyers market. This means that you dealers must use your ingenuity to keep costs down and present your merchandise attractively. Household appliance sales now are about in line with personal income and population growth. It took six years to bring this about—a long time to make up the wartime shortages. Today automatic washers, dryers and garbage disposers are selling faster than refrigerators. You should encourage new manufacturers to enter the LPG field and develop new items for its use. I am sure you wouldfind a ready market for new items developed. In the rural non-farm and rural farm areas your natural potential market for LPG equipment, a saturation of 16.2% had been reached up to 1950. That means of all the homes in these areas using a cooking fuel, practically 1/6 has already installed LPG equipment. This leaves a future new market of nearly 12,000,000 homes for botttled or tank gas. There are countless opportunities for the sale of commercial cooking equipment in all localities beyond the city mains. A recent telephonic survey indicates that of all gas fired commercial cooking equipment being shipped today, about 30% is for LPG, surpassing either domestic cooking, space heating or water heating percentage-wise."

"Accent on Youth for the market of tomorrow"

. . . says William Bambrich, Caloric Stove Co.

BAMBRICH

"I confidently believe that the gas industry is on the verge of the greatest expansion it has ever known. We've got to gear ourselves to take advantage of it . . . get across our price and profit story, chart ourselves a promotion program and stick to it. Our promotion plan must be positive in approach and aggressive in action. It must reach right down to the local level—to the store, the salesmen out ringing doorbells.

Our plan must recognize the importance of youth. That is the market of tomorrow . This industry cannot sustain itself on replacement business . . . and the young people of today are either going to be or *not* going to be, the big gas appliance market of tomorrow, depending upon the wisdom, forcefulness, and persistency with which we sell gas to those teenagers who are growing up in electrical homes.

"There is a need for 'romancing' water heaters; not sold as an afterthought."

. . . says S. E. Wolkenheim, Marketing Director, Permaglas-Heating Div., A. O. Smith Corp.

WOLKENHEIM

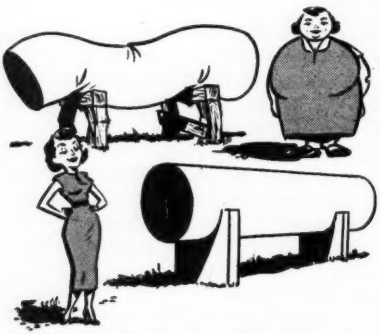
"Appliances, in general, have been romanced from A to Z. Customers and potential customers step into an appliance store or read one of the vivid advertisements and they enter a world of fantasy and push-button living. Now water is not too conducive to a romantic sales story, therefore the 'zip' will have to be built around hot water and the place where it is stored, the tank. Now is the time to start exploiting factors which can make the water heater literally carry itself. One of the factors which could be exploited is health. Hot water has brought about new standards of personal hygiene and food hygiene. Today's market equals an annual volume of about three million units. This represents a $ volume of $375 million with a volume margin of $127 million. There are 20 million automatic hot water heaters in use. There is a huge replacement market since many are too small or are wearing out.

Foundations and Supports For LPG Storage Tanks

Extra precautions required for supporting 18,000 to 30,000 gal. tanks—Character of soil, type of piling, frost penetration, reinforced concrete, analysis of stresses are considerations.

By George R. Benz and R. E. Southwick*
Phillips Petroleum Co., Bartlesville, Okla.

THE conventional support for horizontal tanks is made up of a structural foundation (spread footing, piles, mat, etc.), supporting pier or wall and saddle. Problems involved in the design of supports of L. P. gas storage vessels are not essentially different from those encountered in dealing with the storage of other liquids but a few extra precautions should be observed. It is of utmost importance that the vessel be supported in such a manner as to prevent any movement which would introduce added stresses in the vessel itself or any piping connected with it.



Good foundations can make the difference. A proper saddle holds the tank in circular section. Settlement of foundations causes stresses in piping and vessel. Proper location of supports prevents excessive stresses in the tank shell.

The first requisite of any support is a soil capable of carrying the maximum anticipated load without settlement and a properly designed structural foundation to fit the soil conditions. More damage to piping is likely to occur from overlooking this item than from any of the others which will be discussed here. Precautionary measures should be taken in providing flexibility in the piping connected to a vessel but this does not decrease the importance of providing a stable foundation.

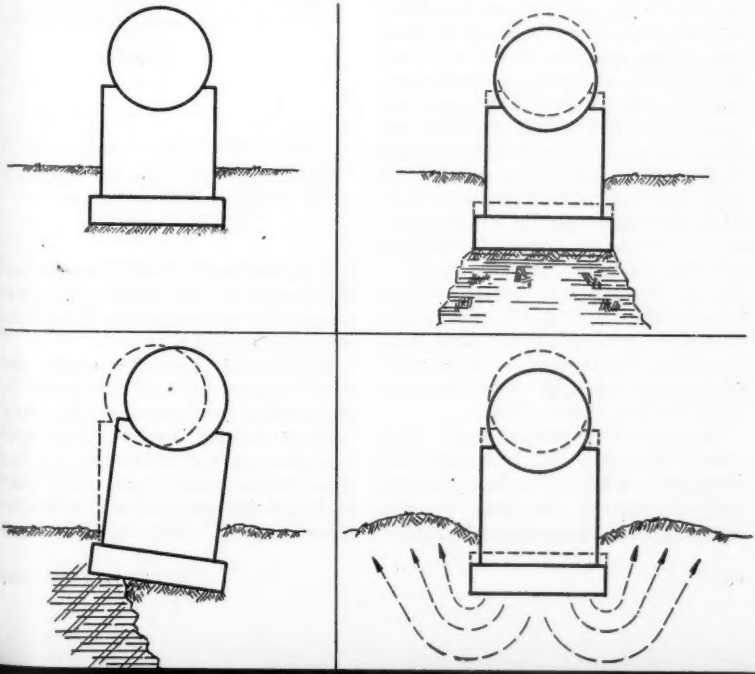
In order to select the proper type of structural foundation first determine the safe load bearing capacity and character of the soil. Previous experience with construction in the immediate vicinity o

This article by Mr. Benz, manager, engineering dept. and Mr. Southwick, supervisor, structural design engineering dept. of Phillips Petroleum Co., is presented as an informative supplementary article in conjunction with BUTANE-PROPANE *News' current series dealing with the planning of distributor-dealer bulk plants by Carl Abell. Part II in this series may be found elsewhere in this issue dealing with Pumps and Compressors.—Editor.*

by a limited examination of the site may determine this. If there is any doubt borings should be made and analyzed by a competent soils and foundation specialist with the design of structural foundations based upon his findings. Although reinforced concrete spread footings are the most common type structural foundations used for tank supports, soil conditions may require the use of piling, mats or other devices.

The bearing area of spread footings will be determined by the load

Spread footings are the most common type of structural foundation but, as shown here in four different soil situations, soil conditions may require use of piling, mats or other devices. Top, foundation sinks in poor soil until it reaches firmer soil; bottom, left, combination of firm soil and loose soil tips support; and bottom right, foundation sinks, buckling soil which pushes up on either side.



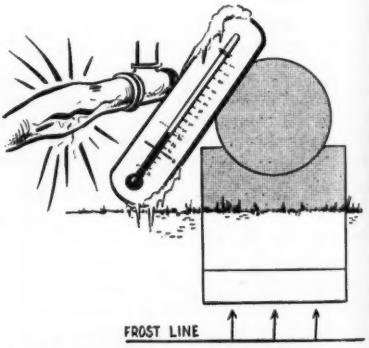
bearing capacity of the soil and the maximum load to be carried by the footing. This maximum load will include the weight of the vessel, maximum liquid load, weight of pier and saddle, weight of footing and any soil overburden carried by the footing.

The weight of any piping, walkways, etc., which would contribute to the load must not be overlooked and if water testing of the vessel is anticipated, the weight of water required to completely fill the tank will be taken as the liquid load. Thickness of the footing and the amount and placing of required steel reinforcing is determined from shear and flexural stresses in accordance with accepted structural design practices or following local codes, if applicable.

The type of pile used if piling is required, may depend on the local supply since the loads from the size tanks involved here will not demand the use of any particular type of pile. Proper treatment of wood piles should be specified on the basis of location and movement of the water table. The number of piles required will depend upon the load carrying capacity of the pile as determined by driving resistance and the maximum load to be carried as described in the preceding paragraph. Placing of the piles should be such that the load will be evenly distributed to each pile. A concrete cap will carry the load from the pier to the piling.

Reinforced concrete mats are sometimes used as a structural foundation where it is found necessary to spread the load over a comparatively large area. If conditions require excavation to a considerable depth below the ground surface in order to reach a satisfactory soil, "bored and reamed" foundations have sometimes proven economical. These are constructed by boring excavation to the required depth and flaring the bottom of the excavation with a suitable reamer. Reinforcing is then placed and the excavation filled with concrete.

It is essential that any structural foundation be carried to a depth below maximum frost penetration. Movement of the support by frost action can cause serious damage to piping and tanks.

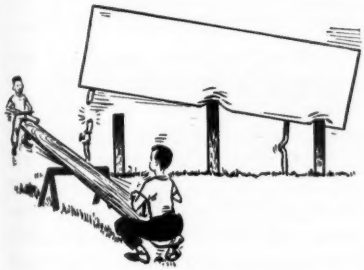


O.K. for Junior but—more than two supports introduces the hazard of improper alignment of saddles.

Reinforced concrete walls are most commonly used as piers in supporting horizantal tanks. Any support should be properly fireproofed and the concrete pier has this inherent advantage along with economy of installation. The distance between tanks and the need

for access to the space between and under the tanks may determine whether a multiple tank installation will have individual piers or continuous walls.

Concrete piers should be reinforced both vertically and horizontally in accordance with accepted methods of structural design. In any case, the reinforcing should not be less than that required for reinforced concrete walls by the American Concrete Institute's "Building Code Requirements for Reinforced Concrete." This requirement will be met by using ½" ϕ bars @ 10" ctrs, ⅝" ϕ bars at 12" ctrs, and ⅝" ϕ bars at 10" ctrs, respectively for 8", 10" and 12" pier thicknesses.



The same force that breaks your frozen water pipes can move your tank foundations. It is essential that any structural foundation be carried to a depth below maximum frost penetration.

Vertical reinforcing in the pier is made continuous with that in the footing by extending the vertical reinforcing from the footing into the wall a minimum distance of 30 bar diameters. Thickness of piers should not be less than 8" and will vary upwards from this depending upon the size of tanks being installed and the height of the piers.

Tank supports should be made of steel or reinforced concrete and should provide a minimum supporting arc of 120°. As mentioned above, it is advisable to provide adequate fireproofing for any steel portion of the support. If steel saddles are employed with concrete piers, a bed of grout should be placed under the steel base at the time the tank is installed in order to provide uniform distribution of load and to prevent distortion of the tank.

Most common, and very satisfactory, are the concrete saddles placed as an integral part of the concrete piers. The supporting arc is formed with a radius enough greater than the outside radius of the tank to allow for placing non-extruding expansion joint material between the concrete and the tank shell. This material provides a uniform supporting cushion around the arc of support and has been found less likely to support a moist condition in contact with the steel of the tank.

Corrosion pads are recommended where tanks are set directly on the concrete saddles. These are thin steel plates welded to the tank at the supports so that the plate, and not the tank shell, is in contact with the saddle.

The use of more than two supports for a horizontal tank introduces the hazard of improper alignment of saddles which may result in localized stresses in the tank

shell. Connected piping may also be affected if movement of the vessel results from misalignment. It is recommended that only two supports be used for fusion welded horizontal L. P. gas tanks.

The location and spacing is sometimes determined by regulations which require that supports be placed at a distance from the end seams equal to a specific fraction of the seam to seam length of the tanks. This distance is usually ¼ or 1/5 of the length.

Place Supports Near Heads

Because of shell and head thicknesses required for working pressures in these vessels the relative location of supports, within reasonable limits, is not important from a structural standpoint. Many operators prefer supports placed near the ends of tanks wherever possible. Because of the relatively thinner shells used in NFPA Type-100 tanks, it is sometimes advisable to place the supports near the heads in order to properly distribute the stresses introduced at the supports.

If it is found advisable to make a mathematical analysis of stresses to be expected from supporting horizontal tanks, as discussed herein, the engineer is able to proceed with confidence by using proper formulae developed through extensive work which has been done on this subject. It is not within the scope of this discussion to go into the presentation of methods of analysis.

Excellent reports and discussions along this line have been written and will serve as a guide to one who finds occasion to work on the design of tank supports. Among these are:

"Stresses in Large Horizontal Cylindrical Pressure Vessels on Two Saddle Supports," from Sept. 1951 Welding Research Supplement—by L. P. Zick, Chicago Bridge and Iron Co.

"Welded Horizontal Cylindical Tanks on Two Saddle Supports," unpublished paper, Dec. 29, 1951, by H. C. Boardman.

"Strain Gage Survey of Propane Tank on Two Saddle Supports," unpublished report, Nov. 15, 1946, summarized in *Steel* magazine, Apr. 12, 1948, by L. P. Zick and C. E. Carlson.

Although riveted tanks are seldom used for L. P. gas storage, because of the nature of their construction, it is usually necessary to furnish more than two supports per tank. In providing supports for these the designer should have complete information concerning their construction, and proper alignment of the saddles requires special care.

Requires Same Attention

The design of supports for vertical storage tanks requires the same attention given to soil conditions and settlement as for horizontal tanks. Here, however, wind load becomes a more important factor and the structural foundation must be designed to resist overturn of the vessel. The tank must be securely bolted to the structural foundation. Vertical tanks may be installed on individual foundations but quite often are installed as a group on a common structural foundation.

Bottogas Service demonstration bus pulls up at English trailer camp to receive visitors.

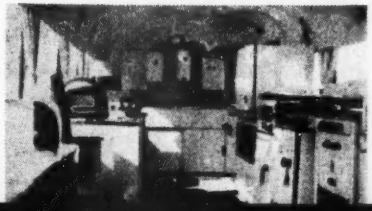
Bottogas 'Takes It to the Customer' In Great Britain

BRITISHERS around Cornwall and Devon have been "passengers on an unrsual bus since January of this year. The motor coach, which had covered 3000 miles up to June, is a completely equipped travelling showroom and instructional unit for butane gas and appliances which has been winding its way through the English countryside in behalf of Bottogas, Ltd.

Taking the bus on its British tour is H. J. Davies of Bottogas, who is finding much enthusiasm in the display among fellow Englishmen, most of whom, he finds, know very little about butane and what it will do.

A large variety of Bottogas equipment and accessories are installed and connected to two 32-lb. cylinders in the rear compartment with connecting bar and Bottogas reducing valve of 14-in. water gauge. The main supply line is ¼-in. O.D. copper pipe, with Wade compression ring joints. Equipment can be demonstrated on the spot, including water heaters, the heaters being supplied by a small water pump. No leaks have been experienced in 3000 miles.

Main purpose of the tour has been instructional—dealing with safety precautions—but great interest has been shown in the mobile showroom by persons in outlying villages en route where town gas is not available. Demonstrations are being made to a large number of caravan distributors and agents in southern England.



Interior view from rear of motor coach showing display of appliances including ranges, refrigerators, water heaters and space heaters.

Texas Distributor-Dealers Hold Record Convention in Dallas

WITH registrations numbering more than 600, the Texas Butane Dealers Assn. held its seventh and largest convention at the Baker and Adolphus hotels in Dallas, June 18-20, while concurrently the suppliers held their second Southwestern Butane Exposition. Chosen president was J. H. Winton, Beaumont.

During the morning business sessions, the following papers and reports were presented:

"Underground Storage at the Dealer Level," by J. A. Farrar, Bellmead Butane Co., Waco, Tex.; "Do You Run Your Own Business?" by M. E. Bussey, Bu-Pane Gas Co., Center, Tex., and "Devices for Collecting Butane Accounts," presented by Sterling S. Speake, University of Texas.

Highlight of the meeting was the association report on its fuel supply study. Moderator was A. A. Pickens, Butane Supplies, Inc., Tyler, who headed a special fuel study committee. Discussion leaders were John Curtin, Texas Natural Gasoline Corp., Tulsa, and Frank Devoe, Phillips Petroleum Corp., Bartlesville, Okla.

Other talks delivered at the record convention included "Workmen's Compensation Losses Are Eating Us Up," by C. E. McFadden, Employes Casualty Insurance Assn., Dallas, and the featured speaker at the Friday luncheon was Hon. W. Lee O'Daniel, former Texas governor and U. S. Senator.

In order to provide ample time for visiting the Southwestern Butane Exposition, with 43 individual exhibitors, all business sessions were held during Thursday and Friday mornings. Attendance at these morning meetings was unusually good. Two fea-

Pausing for the photographer, during the Texas Butane Dealer Assn. dinner at the convention in Dallas, are, left to right, retiring president Gene Bumpus and Mr. and Mrs. J. H. Winton. Mr. Winton was elected Association president at the convention.

Squibb-Taylor hosted the convention ladies during a luncheon in Dallas

tures designed to promote prompt attendance were introduced with unusual success—free breakfasts for all registered dealers and employes, and a special drive to get the wives to attend the convention with their husbands. In addition to the banquet and grand ball, which was the closing feature on Friday night, Squibb-Taylor Co. was host to the convention ladies with an afternoon conducted tour, tea, and shopping trip.

Features of the Friday night banquet and grand ball were the presentation of a gavel to retiring president, Gene Bumpus, and introduction of the newly elected officers for the coming year, including President Winton, U. C. Roney, Corsicana; Joe A. Farrar, Waco; and W. C. Warren, Lubbock, vice presidents. Gus J. Moos, Austin, was named treasurer for the eighth successive time.

Directors elected to serve for two years were Mr. Winton, J. B. Mumme, Alice; Barney Wotipka, Flatonia; Jack Anderson, McKinney; Pete Moore, Henrietta; R. L. Nance, Sonora; and W. C. Warren, Lubbock. William J. Lawson, Austin, was re-elected executive secretary.

•

Endorsement of the National L. P. Gas Promotional Program by the Texas Butane Dealers Assn. has been announced by William J. Lawson, Austin, Tex., executive secretary.

In a letter to Lee A. Brand, chairman of the national promotion committee, Mr. Lawson said his organization's board of directors had accepted a recommendation made by U. C. Roney, Corsicana, Tex., chairman of the association's Industry Promotion committee, and voted to pledge its support to the national effort. At the invitation of the Texas association, Mr. Brand had appeared before its Industry Promotion committee on June 17, prior to the Texas convention, to outline the objectives and operations of the national program.

Mr. Roney recommended that the Texas association endorse the program, stating that "his group was now satisfied with the program for public acceptance and the advertising plans as promulgated by the national committee and that it felt such a program was timely, intelligent and appropriate." He further recommended that the Texas association maintain its own Industry Promotion committee, and this group cooperate with the national committee.

ASSOCIATIONS

Arkansas

In closing sessions of the annual Arkansas Butane Dealers Assn. convention held in Little Rock June 8-10, members voted to help the Revenue department of the state collect taxes on L.P. gas used in highway vehicles. Retiring president Joe E. McKim, Springdale, presided over the meeting. The proposal voted upon was recommended by Ed R. Henry, director of the motor fuel tax division of the Revenue department. It calls upon the state's dealers to collect 6½ cents per gallon tax when the gas is sold. Dealers would be permitted to retain the tax on 2% of the taxable gallonage to cover losses and collection expense.

Recommended revisions of the Arkansas laws include: (1) the elimination of 20 gallons credit for each trip into Arkansas, when operating on a mileage reporting basis; (2) "elimination of the 8-miles-per-gallon and use actual miles in computing tax report."

Another resolution adopted calls upon dealers to support legislation which would permit legitimate installment selling under proper financing. This was proposed in order to disassociate legitimate financing from usurous financing as condemned by a recent Arkansas Supreme Court warning against the practice of charging more than 10% interest on installment credit.

New officers and directors elected at the conference, attended by more than 400 members and their wives, were: President, Robert L. Remy, Boonville. Vice presidents: Leonard Warden Sr., West Memphis; R. J. Dodson, Camden; Olen Grounds, Blytheville. Directors: Francis Weis, Brinkley; James L. Moseley, North Little Rock; and George De Laughter, Sparkman. Executive secretary is A. W. Porter, Little Rock.

A panel forum, participated in by a large number of industry representatives, was a highlight of the meeting. Questions discussed by the panel included: the effect upon the industry of the recent petroleum strike; the effect upon the industry of underground storage; a forecast for LPG supply; the future market for L. P. gas for motor fuels; insurance needs and requirements of the industry; and the effect of the metal shortage for appliances and steel shortage for tanks.

Those participating in the forum were Roy Martin, Rogers Butane Gas Co.; Tom Gorman, Tom Gorman Co.; Ray Maxwell, Maxwell Bros.; Russell Evans, Evans Butane Gas Co.; R. C. Weis, Weis Butane Gas Co.; Ed R. Henry, State Revenue dept.; Gordon Wolfkiel, Sinclair Oil Co.; Robert L. Remy, Arkansas Liquefied Gas Co.; and Joe McKim, L. P. Gas & Equipment Co. (moderator).

Also included were George Dillon, Janitrol; George De Laughter, De Laughter Butane Gas Co.; Claude Rogers, Tappan Stove Co.; Mrs. Dulun White, Arkansas Butane & Gas Co.; Preston Grace, White River Distributors Inc.; H. T. Adams, J. B.

Beaird Co.; Charlie Craig, Farmers Insurance Co.; Jack Treece, Marshall Butane Gas Co.; Louis R. Light, Light Adjustment Co.; Alex Hill, Little Rock, Earl Tripp Gas Co.; Harold Smock, Education dept.; and Grady Forgy Jr., John Hancock Life Insurance Co.

William Bambrick, Caloric Stove Co., in a talk on "Gas vs. Electricity," demonstrated and proved that gas is faster, cooler, cleaner and cheaper. Sue Hearndon, Home Service dept., Arkansas-Louisiana Gas Co., Little Rock, assisted in the demonstration. Talking on L. P. gas education, Fred A. Rives, Automatic Gas Co., Columbus, Ga., and chairman of the legislative committee of LPGA, pointed out that the future of the industry depends upon how it prepares for the future educationally.

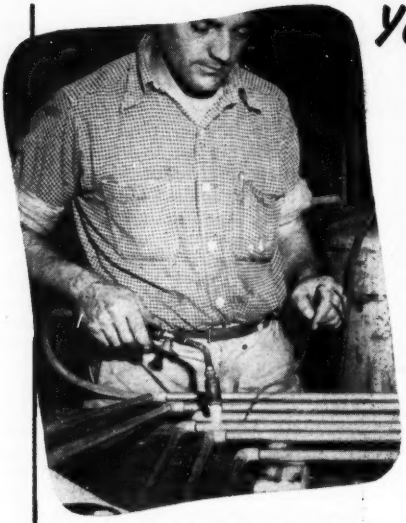
In a talk on "Automobiles, Razors and Radios," B. B. Turner, range sales manager, Maytag Co., Newton, Ia., pointed out that every product passes through this marketing spiral: (1) point at which marketing begins; (2) public acceptance; (3) point of saturation. He emphasized that the L. P. gas industry is now going through the second stage, "public acceptance."

Distinguished service awards were presented at the annual banquet to Joe McKim, outgoing president; Leonard Warden, T. G. Tackett, and Joe E. Ketner. A special cash award was presented to dealer Rex Evans of Judsonia for his heroic efforts assisting townspeople following a recent cyclone in Judsonia. Max Fetty of Delta Tank Manufacturing Co., was master of ceremonies at the banquet. The banquet speaker was C. Smedley Hunterbrooks and U.S. Congressman Boyd Tackett was a luncheon speaker. Sidney McMath, governor of Arkansas, also appeared.

Montana

Fred C. Jones, Union Natural Gas Co., Great Falls, was re-elected president of the Montana LPGA at its recent annual meeting in Great Falls, Mont. All other officers were re-elected including Ray E. Johnson, Glacier Distributing Co., Cutbank, vice president; and Norman Johns, Geo. Steele Co., Great Falls, secretary. Members of the group voted to coordinate all activities more closely with the national LPGA. Sixty-eight dealers and suppliers from six states and Canada attended the convention.

Newly elected officers and directors of the Arkansas Butane Dealers Assn. are shown, seated, left to right, Olen Grounds, vice president; Robert L. Remy, president; Leonard Warden Sr., and R. J. Dodson, vice presidents. Standing, George De Laughter, director; Joe McKim, outgoing president; and Francis Weis, director. Not in picture is James L. Moseley, director.



Sweating streamline copper fittings with RANSOME Torch 75X. Note how light and easily it handles compared with tank-on-handle torches.

Your Phone Book...

A GOLD MINE FOR SALES OF

RANSOME TORCHES

Check these headings in the yellow section. Every name you count is a prospect for one or more RANSOME Torches—

- **ELECTRICIANS**
- **GARAGES**
- **LINOLEUM LAYERS**
- **MACHINISTS**
- **PAINTERS**
- **PIPEFITTERS**
- **PLUMBERS**
- **ROOFERS**
- **SHEET METAL SHOPS**

To Sell Easily, talk these advantages: **Quick Starting**—no pumping, no pre-heating; **Easy to Use**—RANSOME Torches are light, no heavy tank to get in way; **Safe**—no fuel to spill; ICC approved cylinders.

For real profits sell RANSOME Torches. You make money on torch; user usually buys LP-Gas in premium-priced containers, becomes good prospect for additional equipment and gas.

Stock RANSOME'S complete line of LP-Gas torches and plumber's furnaces to build year-round fuel load. Send NOW for catalog, prices, discounts.

Makers of Torches, Burners, Furnaces for LP-Gas Since 1932

RANSOME COMPANY

Designing & Constructing Engineers

26 Room 8A , 4030 Hollis St., Emeryville, California

Ransome

Officers of the Wyoming LPGA re-elected at the group's annual meeting in Casper, Wyo., June 23-24 are shown, left to right, T. C. Wassenberg, second vice president; C. A. Brown, first vice president; Joy Kastner, director; Jack White, secretary; Barney DeCora, president; and George Howarth, treasurer. *(Photo courtesy Eaton Metal Products Co., Denver, Colo.)*

Wyoming

The Wyoming LPGA meeting was held at the Townsend hotel, Casper, Wyo., June 23-24, 1952. Officers and directors elected were: Barney De Cora, president, Sweetwater Gas Co., Rock Springs; C. A. Brown, first vice president, Pure Gas Co., Riverton; T. C. Wassenberg, second vice president, Gillette; Jack White, secretary, Wheatland; George Howarth, treasurer, Buffalo; and Joy Kastner, director, Ranchers Gas and Supply, Cheyenne.

Theme of the convention was "Management" with speakers discussing government regulations, insurance, advertising, sales and gas supply. The program included Howard Larson, Phillips Petroleum Co., Denver; Elmer Jobe, Universal Insurance Underwriters, Denver; J. C. Crawford, LPGA district secretary, Denver; Charles Corken, Oklahoma City, Okla.; A. B. Kahn, U.S. Dept. of Commerce, Cheyenne, Wyo.; Homer Gittings, Western Farm Life, Denver; and S. G. McLain, Remington Rand, Denver.

Minnesota

More than 150 L. P. gas men attended the first annual summer meeting of the Minnesota Petroleum Gas Assn., June 20-21, at the Edgewater Beach hotel, Detroit Lakes, Minn. The program featured as speakers W. C. Bissonett, OPS Fuels and Chemicals div., who spoke on price regulations affecting the industry with particular attention to the recent supplements changing the regulations, and Arthur C. Kreutzer, LPGA vice president and counsel, who discussed the "National Scene" and LPGA activities.

Additional speakers and their topics were: R. A. Gasal, Butler Manufacturing Co., Kansas City, "The Philosophy and Psychology of Selling;" Floyd Selim, Phillips Petroleum Co., Bartlesville, Okla., "L. P. Gas as a Motor Fuel;" W. G. Baustert, Hamilton Manufacturing Co., Two Rivers, Wis., "Importance of Clothes Dryers to the LPG Industry;" and M. A. Ennis, National Committee for L. P. Gas Promotion, "Modern Ways of Selling Gas Ranges." A Harper-Wyman "Gas versus Electricity" cooking demonstration was also presented.

Steve Fligelman, Consumers Gas Co., Detroit Lakes, was elected president and Robert Zuppke, Natrogas, Inc., Minneapolis, was named vice president. G. F. Bursinger, Northwestern Blaugas Co., will remain secretary-treasurer of the association.

The group plans to have their next

meeting on Nov. 3 at the Nicollet hotel, Minneapolis.

California

The office of the Liquid Gas Dealers Assn. of California combined with the West Coast office of LPGA is now established at 3394 Fulton Ave., Sacramento 21, Calif., according to George Requa, executive secretary of both groups.

During June a series of driver and service man conferences aimed at safety practices were held in southern California at Anaheim, San Bernardino, Long Beach, San Fernando and Los Olivos. Mr. Requa reports all meetings were well attended with a great deal of interest shown in the program. Additional meetings are scheduled for other parts of the state.

Iowa

The Iowa L. P. Gas Assn. held four important district meetings in Iowa July 15-18 at Waterloo, Storm Lake, Corning and Ottumwa, according to John Kelderhouse, LPGA North Central District secretary.

State legislative action for the industry, L. P. gas range sales and a color film along with state association matters were presented during these district meetings.

AUGUST

4-5—TENNESSEE L. P. GAS ASSN. Annual Convention. Andrew Jackson hotel, Nashville, Tenn.

4-6—LOUISIANA L. P. GAS SERVICE SCHOOL. Baton Rouge, La.

18-19—KENTUCKY L. P. GAS ASSN. Annual Convention & Trade Show. Seelbach Hotel. Louisville.

SEPTEMBER

7-10 — EASTERN L. P. GAS SERVICE SCHOOL. University of Bridgeport. Bridgeport, Conn.

11-12—LPGA Board of Directors meeting. Hotel Nicollet, Minneapolis, Minn.

14-16—New Mexico Liquefied Petroleum Gas Assn. Hilton Hotel, Albuquerque, N.M.

15-16—Virginia L. P. Gas Assn. Annual Convention. Natural Bridge, Va.

29-30—UTAH L. P. GAS ASSN. Fall Meeting. Salt Lake City.

OCTOBER

12-18—OIL PROGRESS WEEK.

27-30—AMERICAN GAS ASSN. 34th Annual Convention. Atlantic City, N. J.

27-31—GAS APPLIANCE MANUFACTURERS ASSN. Exposition. Ambassador hotel, Auditorium, Atlantic City, N.J.

30 — NORTHEASTERN DISTRICT, LPGA. Ambassador Hotel. Atlantic City, N. J.

NOVEMBER

3—MINNESOTA PETROLEUM GAS ASSN. Hotel Nicollet, Minneapolis, Minn.

10-13 — AMERICAN PETROLEUM INSTITUTE. Annual meeting. Conrad Hilton and Palmer House hotels, Chicago.

19—AMERICAN STANDARDS ASSN. Waldorf-Astoria hotel, New York, N. Y. City.

DECEMBER

4-5—LPGA Board of Directors meeting. Jung Hotel, New Orleans, La.

Stopper for bottling up the Bottle Gas Business!

This hard hitting mailing piece is typical of TEMCO's all-out advertising and promotion efforts to build gas appliance business for the LP Gas dealers all over America.

Every TEMCO national or farm magazine advertisement, every TEMCO radio program, TEMCO newspaper advertisement, TEMCO mailing piece stresses the fact that "LP Gas has got it . . . and TEMCO builds it best."

If you want the maximum LP Gas Appliance business possible in your neighborhood, better sell TEMCO—the line that goes all out to sell the LP Gas Dealer.

Write today and learn how TEMCO can help you increase your year round sales.

GAS WALL HEATERS • GAS CLOTHES DRYERS • GAS HEATERS • GAS FLOOR FURNACES

TEMCO, inc.

NASHVILLE, TENNESSEE

AMERICA'S GAS APPLIANCE SPECIALISTS

Colorado

James Thompson, Denver Propane Co., Denver, was elected president of the Colorado LPGA at its recent annual meeting in Denver. George Cummings, Cummings Gas & Equipment Co., Montrose, was named vice president while Pete Davie, Pete Davie Gas & Appliance, Fort Collins, was chosen secretary.

JAMES THOMPSON

Directors chosen include Robert Strawn Jr., Gas Supply & Appliance Co., La Junta; Max Chelf, Canon Gas Service, Canon City; A. B. Morrow, A. B. Morrow Butane-Propane Service, Burlington; Ralph Vance, Brush Gas and Equipment Co., Brush; Lloyd Warren, Community Gas Co., Monte Vista, and Carl Heidt, Basin Petroleum Co., Durango.

Mountain States LPGA

More than 100 industry men and women attended LPGA's annual Mountain States district convention June 12-14 at Cosmopolitan hotel, Denver, Colo. "Management" was the theme, with speakers directing their remarks toward some phase of that subject. Gov. Dan Thornton of Colorado addressed the opening luncheon.

Other speakers included Tom Fitzgerald, U.S. Dept. of Commerce, who explained NPA and OPS regulations and their effect on the industry; Hal Daunis, Denver university, who discussed business management; J. H. Brinker, A. O. Smith Corp. sales manager, who discussed the importance of small businessmen; and Harry Thomas, Stanolind Oil and Gas Corp., who discussed "Supply Prospects for 1952-53."

The agenda was completed with remarks by Howard White, LPGA executive vice president; Mel Ennis, National Committee for L.P. Gas Promotion, who presented the film, "New Ways to Sell Modern Gas Ranges"; and Wynn Hobbs, Phillips Petroleum Corp. A featured speaker was Robert Kazmayer, noted economist.

The Mountain States district office has moved from the Flat Iron Bldg., Denver to the Kittredge Bldg., 16th & Glenarm Sts., Denver 2, Colo.

Kentucky

A record attendance of Kentucky dealers is expected at the fifth annual convention and trade show of the Kentucky LPGA August 18-19 at Seelbach hotel, Louisville, Ky., when three major speaking sessions, a business meeting and fellowship program will be held, according to Frances L. Holliday, executive secretary.

The number of speakers have been held to three in the hopes of presenting a more interesting single program to a greater audience. Addresses will be given by The Honorable John S. Cooper, a member of the United Nations, who will discuss "Time for Decision"; M. A. Ennis, National Committee for L. P. Gas Promotion, who will present an original illustrated talk on LPG and LPG appliance sales; and Floyd F. Campbell, St. Louis, Mo., who will tell his audience how to "Get a Profit Out of Your Business."

The annual business meeting will be an open session to include election of officers and directors and mapping of plans for next year. A pre-convention supper on Sunday evening, Aug. 17 will be held, sponsored by a number of suppliers.

PRACTICAL MANAGEMENT OF AN LP-GAS BUSINESS

CHAPTER 17

Service Is Your Business

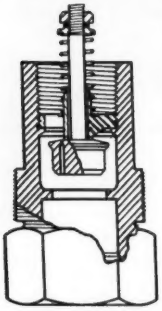
Cheap service labor is false economy—Call-backs are costly for LPG dealer—Properly trained and equipped service men is the answer

THE foundation of a successful gas business is *Service*. Whether or not you stay in business depends more upon the service that you render than upon your ability as a salesman. You can have a most efficient sales department, but if the appliances which you sell are not properly installed, adjusted, and serviced thereafter, your gas customers will soon desert you and go to a competitor who renders better service.

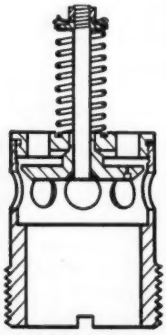
Surprising as it may seem, price is in third place among the reasons why customers change from one gas service to another. Study *Table 1*. This should have a sobering effect upon the fellow who expects to steal the other fellow's customers because he believes that people do not like his competitor. At the same time it should turn the searchlight of self-analysis upon himself. The second reason for customers changing their gas supply source is belief that they have been cheated by the dealer. It will be noted that unsatisfactory service is by far the largest cause of customer changes, amounting to 23.96% of the total!

EXTRA EFFICIENCY

EXTRA SAFETY



STORAGE TANK MANHOLE COVER



STORAGE TANK BOTTOM OUTLET

The New

KEROTEST

Excess Flow

CHECK VALVES

for

LPG TANK CARS, STORAGE TANKS, TANK TRUCKS, CONTAINERS, LINES

New KEROTEST *Peak-Efficiency* Excess Flow Valves feature higher flow capacity, low pressure drop . . . and positive, non-chattering checking action. Ratings from 1300 to 10,000 GPH. For *extra* efficiency and safety . . . specify KEROTEST.

OTHER excess flow valves for truck tank bottom outlet, LP lines, and small domestic tank bottom outlet.

Excess Flow Valve	Kerotest No.	Size	G.P.H. Rating
Storage Tank Bottom Outlet	P99D1-1	2″ NPT	4300
Storage Tank Bottom Outlet	P99D3-1	2″ NPT	6800
Storage Tank Bottom Outlet	P99D5-1	3″ NPT	8400
Storage Tank Manhole Cover	P99B1-1	1½″ NPT	1500
Storage Tank Manhole Cover	P99B2-1	2½″ NPT	3600

KEROTEST

KEROTEST MANUFACTURING COMPANY

PITTSBURGH 22, PA.

There is less likelihood of being destroyed by high service costs than there is of being forced out of business by unusually low service costs or the entire lack of them. In this respect I speak of genuine service costs and not the conglomeration of operating expenses which are as a rule charged up against the service department.

The service department of most gas businesses is an often abused one, for it is a catch-all for all of the work and the expense which management does not bother to charge up elsewhere. Uncrating appliances for display, placing them upon the showroom floor, polishing them, sweeping and dusting the showroom are not legitimate service expenses; painting buildings, repairing the warehouse floor or grading the yard are most certainly maintenance expenses. Running personal errands for the boss, greasing the gas delivery truck, or decorating a float for the Fourth of July parade cannot by any stretch of imagination be called service expenses, yet if you examine the books of many gas companies you will find these expenses charged to the service department.

As a result, at the end of the year, management is faced with a staggering total of so-called service expenditures. Because the service department has not been able to charge enough for its legitimate services to offset all of the unjust expense with which it has been saddled it is looked upon as the "bad boy" of the Industry and usually treated as such.

The fact of the matter is, the service department can be the most effective selling department of your

TABLE 1. AN ANALYSIS OF REASONS GIVEN BY 121 GAS CUSTOMERS FOR CHANGING THEIR GAS SUPPLY SOURCE.

Reason Given By Customer For Changing	Number Changed	Percentage Changed
Unsatisfactory service	29	23.96
Customer believes dealer has cheated him	17	14.04
Lower price quoted by competition	14	11.57
Over-sale of gas or appliance by dealer	13	10.74
Friendship or relation to competitive dealer	9	7.43
Business relationships with competitive dealer making change seem desirable	8	6.61
Geographical location of dealer	7	5.78
Type of gas equipment installed	7	5.78
Dealer competes with customer in some line of business	5	4.13
Customer changed to avoid paying bill	5	4.13
Personal dislike for dealer or his employes	4	3.30
Political or religious reasons	3	2.47
TOTALS	121	99.94

TABLE 3. WHAT THE INEFFICIENT SERVICEMAN ACTUALLY COSTS YOU.

If His Weekly Salary Is	And He Makes This Number of Mistakes Per Week					
	1	2	3	4	5	6
	He Is Actually Costing You Per Week					
$30.00	$34.93	$39.86	$44.79	$49.72	$54.65	$59.58
35.00	40.32	45.64	50.96	56.28	61.60	66.92
40.00	45.72	51.44	57.16	62.88	68.60	74.32
45.00	51.12	57.24	63.36	69.48	75.60	81.72
50.00	56.52	63.04	69.56	76.08	82.60	89.12
55.00	61.91	68.82	75.73	82.64	89.55	96.46
60.00	67.31	74.62	81.93	89.24	96.55	103.86
65.00	72.71	80.42	88.13	95.84	103.55	111.26
70.00	78.11	86.22	94.33	102.44	110.55	118.66
75.00	83.51	92.02	100.53	109.04	117.55	126.06
80.00	88.90	97.80	106.70	115.60	124.50	133.40
85.00	94.31	103.62	112.93	122.24	131.55	140.86
90.00	99.71	109.42	119.13	128.84	138.55	148.26
95.00	105.11	115.22	125.33	135.44	145.55	155.66
100.00	110.51	121.02	131.53	142.04	152.55	163.06

TABLE 4. HOW A SERVICEMAN DEPRECIATES HIS VALUE TO HIS EMPLOYER BY MAKING CALL-BACK MISTAKES.

If as a Perfect Workman He Would Be Worth to You Per Week	But He Makes This Number of Call-Back Mistakes Per Week					
	1	2	3	4	5	6
	His Worth to You Is Only					
$100.00	$89.49	$78.98	$68.47	$57.96	$47.45	$36.94
95.00	84.89	74.78	64.67	54.56	44.45	34.34
90.00	80.29	70.58	60.87	51.16	41.45	31.74
85.00	75.69	66.38	57.07	47.76	38.45	29.14
80.00	71.10	62.20	53.30	44.40	35.50	26.60
75.00	66.49	57.98	49.47	40.96	32.45	23.94
70.00	61.89	53.78	45.67	37.56	29.45	21.34
65.00	57.29	49.58	41.87	34.16	26.45	18.74
60.00	52.69	45.38	38.07	30.76	23.45	16.14
55.00	48.09	41.18	34.27	27.36	20.45	13.54
50.00	43.48	36.96	30.44	23.92	17.40	10.88
45.00	38.88	32.76	26.64	20.52	14.40	8.28
40.00	34.28	28.56	22.84	17.12	11.40	5.68
35.00	29.68	24.36	19.04	13.72	8.40	3.08
30.00	25.07	20.14	15.21	10.28	5.35	0.42

TABLE 2. COST OF EACH CALL-BACK SERVICE JOB BASED ON THE WEEKLY WAGE PAID TO THE SERVICE EMPLOYE.

Weekly Wage $	Approximate Hourly Wage* $	Cost of 3 Hours Wasted $	Transportation Cost $	Give-Away Cost $	Total These Items $	Plus 17% Overhead $	Total Cost of Call-Back Job $
30.00	.6818	2.05	1.03	1.13	4.21	.72	4.93
35.00	.7954	2.39	1.03	1.13	4.55	.77	5.32
40.00	.9091	2.73	1.03	1.13	4.89	.83	5.72
45.00	1.0227	3.07	1.03	1.13	5.23	.89	6.12
50.00	1.1363	3.41	1.03	1.13	5.57	.95	6.52
55.00	1.25	3.75	1.03	1.13	5.91	1.00	6.91
60.00	1.3636	4.09	1.03	1.13	6.25	1.06	7.31
65.00	1.4772	4.43	1.03	1.13	6.59	1.12	7.71
70.00	1.5909	4.77	1.03	1.13	6.93	1.18	8.11
75.00	1.7045	5.11	1.03	1.13	7.27	1.24	8.51
80.00	1.8181	5.45	1.03	1.13	7.61	1.29	8.90
85.00	1.9318	5.80	1.03	1.13	7.96	1.35	9.31
90.00	2.0454	6.14	1.03	1.13	8.30	1.41	9.71
95.00	2.1590	6.48	1.03	1.13	8.64	1.47	10.11
100.00	2.2727	6.82	1.03	1.13	8.98	1.53	10.51

*Based on a 44 hour work week.

business. Quite often it is called upon to keep sold an appliance which an enthusiastic salesman has oversold and to accomplish the difficult task of making it fulfill all of the functions which the salesman has claimed for it.

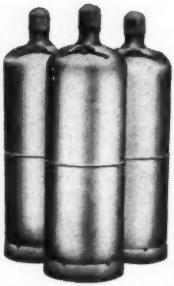
Management is quite apt to look upon the sales department as its fair-haired child, particularly if that department has a propensity for procuring signatures "on the dotted line." What management is prone to forget is that the sale of any appliance is not complete until it is delivered, set up, connected to the gas service, properly adjusted, operating to the satisfaction of the customer and paid for by the customer.

While these tasks can be performed best by those with mechanical aptitude (for which reason the service department falls heir to them), they cannot be classified properly as functions of a service department. Up to this point the service department operates as a part of the sales department, and an ignorant service employe can be a shocking let-down from the atmosphere of an attractive sales room and carefully groomed sales employes. Service expense in these functions is definitely a sales expense, and should not be charged without reservations to the service department.

Extreme examples of warped thinking along these lines are the many cut-rate appliance merchandisers who literally drop appliances in customers' laps at reduced prices with the understanding that if any-

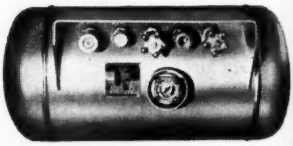
Master Tanks *for*

SAFETY • QUALITY ECONOMY



100#
I.C.C. CYLINDERS

The construction of Butane-Propane Tanks is big business and Master Tank and Welding have the facilities and experienced personnel to meet all requirements. Our huge plant extends over 36 acres, where we produce quality pressure vessels and Butane-Propane Tanks of all sizes. Write, wire or phone us about your tank problems.



FUEL SYSTEMS
Stock items range from 15" diameter by 31" long with 20-gallon capacity through 24" by 60" long with 103-gallon capacity. Special sizes on request.

DOMESTIC SYSTEMS
Only one of our many tanks. A new 500-gallon Propane tank that meets all demand requirements. Compact fitting arrangement liquid withdrawal in top and bottom. Many other sizes of Butane and Propane Tanks of U-69 construction for above or underground.

20-LB. I.C.C.
CYLINDERS

200# PROPANE CYLINDERS
200# W.P. U-69 A.S.M.E.
57 Water Gallon Capacity.

also Storage Tanks
Truck Tanks
Refinery Equipment
Anhydrous Ammonia
Vessels

MASTER TANK & WELDING

P. O. Box 5146 • DALLAS, TEXAS • Phone PRospect 2441

thing goes wrong with the appliances the customers are not to come back to the appliance merchandisers for service or adjustments.

Customers may promise compliance with this policy under the temptation of reduced prices, but human memories are short, and customers will, in spite of such understandings, come back to appliance merchandisers when appliances require service or repairs. The end results are disillusionment, disappointment, dissatisfaction and loss of future business.

Selling appliances for the immediate profits involved with no thought given to future or repeat business is a short-sighted policy. Appliance manufacturers do not like this way of doing business, and herein lies one explanation why so many appliance merchandisers frequently change the brands of merchandise which they are selling. It also explains why so many promising appliance merchandisers fail to attain the size and success to which they would otherwise be entitled and remain at that precarious point where each appliance sale must be made to a new customer.

It is natural for management to keep its operating expenses as small as possible, but the service department is no place to start unreasoned economies. Cheap service labor is the most expensive labor that you can hire. Refusing to properly equip a service department is also false economy. Quite often an excuse for this policy is that service employes do not take proper care of the tools with which they are furnished. This is an indictment of management rather than of the service department.

TABLE 5. CAUSES OF COMPLAINTS AS DETERMINED IN AN ANALYSIS OF 94 SERVICE JOBS.

Cause of Complaints	Percentage of Total Jobs
Excusable ignorance	20.21%
Inexcusable ignorance	48.93%
Carelessness	28.72%
Avarice	2.12%

Why is cheap service labor the most expensive labor that you can hire?

First, as has been stated, it is a poor associate of your sales department.

Second, cheap labor causes an excessive number of call-backs to correct jobs which have been improperly performed.

Aside from the fact that call-backs are expensive, you aren't fooling the public by excuses to cover up an inefficient service department. People are too polite to call you a liar to your face, but they may think it just the same, and when it comes time for them to buy another appliance they purchase it elsewhere in spite of any financial inducements that you may have to offer.

What does a service job cost?

When the nature of a service job is a call-back it is impossible to determine what the cost is in prestige and lost future profits.

TABLE 6. RESPONSIBILITY FOR 94 SERVICE COMPLAINTS.

Responsibility of	Reason Why	Percentage of Complaints	Total Percentage of Complaints
Management	Avarice. Selling appliances that should not have been sold	2.12%	
	Withholding proper information or training from serviceman	31.81%	33.93%
Manufacturers	Careless assembly or testing in the factory	8.51%	8.51%
Serviceman	Inexcusable ignorance. Information in his possession that he did not consult	17.12%	
	Carelessness in failing to make proper tests and inspections	15.96%	
	Failure to properly instruct the customer	4.25%	37.33%
No One In Particular	Appliances worn out, rusted out, or unsuited to job because of changed conditions	20.21%	20.21%
		TOTAL	99.98%

You can't afford call-backs at any cost, but if you are inclined to discount the injury to your business it would be well for you to consider their immediate drain upon your pocketbook.

Table 2 has been compiled from the records of three large gas distributors. Common minor service jobs such as burner adjustments have not been included because it was the opinion of these gas distributors that the gas delivery man should be able to take care of them in a very few minutes at the time of making a gas delivery. The records revealed the following facts which have been taken into consideration in the compilation of this Table.

(1) When the gas installations were made by a serviceman who did not know his job thoroughly, 73% of all such jobs required call-backs.

(2) The time wasted by the serviceman on call-backs, from the time that he started to get ready to go out on such a job until he returned and was ready for another job, averaged three hours.

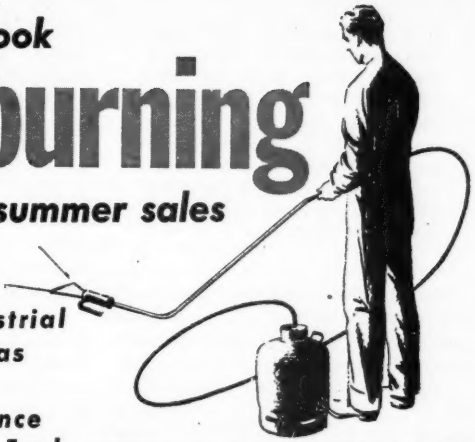
(3) Supplies, such as tubing, fittings, orofice spuds, damaged parts on appliances, which had to be furnished to customers on call-back jobs, without charge, averaged $1.13 per job.

(4) A company-owned vehicle was tied up for three hours on each such job, and the mileage cost

don't overlook

weed burning

for LP-Gas summer sales



Industrial LP-Gas Can Balance Your Fuel Load

Weed burning is but one of the many industrial uses for LP-Gas. Coming at a season when your domestic sales are low, weed burning operations offer an excellent opportunity to sell your local utilities, municipalities, national parks, forest service, etc., AND to establish your name in these offices as the source for LP-Gas torches, furnaces and fuel. Once you open such accounts, they generally last for years. Remember, one average industrial account is worth six domestic.

singly...or in groups

Burner head may be used singly for heavy pre-heating, paint burning, scraping, etc., or may be manifolded in groups for flame cultivation.

MUTUAL NO. 2 HAND WEED BURNER

The Mutual Weed Burner is a natural summer load builder. Can be used anywhere LP-Gas is available. One town that has made weed burners standard equipment uses from 10 to 15 100-lb. cylinders each week in summer months.

Light and easy to operate, burner rests on sliding skid to permit flexible operation. Burns weeds at their base. The flame is controlled by a valve at end of tube, and can be varied from 6 to 16 in. Burner will not blow out. Overall length is 72 in. Hoses available with No. 58 (⅜") Nut at both ends or with P.O.L. and No. 58 Nut. Send for *Mutual* catalog.

Mutual
LIQUID GAS EQUIPMENT CO., INC.
3600 WEST IMPERIAL HIGHWAY
INGLEWOOD, CALIFORNIA

plus depreciation and other costs applicable to transportation averaged $1.03 for each call-back job.

(5) Overhead costs of approximately 17% go on relentlessly and must be charged against each call-back job in order to arrive at anything approximating a true picture of their cost.

Bear in the mind that you have paid once for having the job done right, and that the cost of each call-back job is a dead loss to you.

Let's get back to this matter of cheap service labor again. *Table 3* shows its actual cost. As you analyze it, remember that the costs to you, which it illustrates, do not include loss of prestige and future profits by having chronic blunderers in your employ.

Table 4, a modification of *Table 3*, illustrates what you are actually getting for your dollar out of an inefficient service man. It should also serve a useful purpose when talking with the serviceman who asks for a raise, if it shows his record of call-backs does not warrant one.

Actually, the serviceman who averages but one call-back job per week, is a liability instead of an asset, and you can't afford to keep him in your employ at any price. Showing the record to any serviceman who is careless or has a tendency to slip into slip-shod ways

TABLE 7. ANALYSIS OF DEALERS' SERVICE DEPARTMENTS IN SIX MARKETING ORGANIZATIONS.

Marketing Organization	Type of Dealer Training Employed	No. of Dealers Analyzed	Ratings & Percentages Good No.	%	Fair No.	%	Poor No.	%
A	Practically none	40	5	12.5	16	40	19	47.5
B	1 trained field employe. Infrequent service schools	53	16	30.18	18	33.96	19	35.84
C* D* E*	Intensive service schools. Field representatives (x)	168	63	37.50	58	34.52	47	27.97
F	Frequent small local service schools. Trained service employes assigned to small territories.	53	21	39.62	24	45.28	8	15.09
Combined Organizations		314	105	33.43	116	36.94	93	29.61

*—Organizations combined in this analysis because training methods are identical.

X—Field representatives overworked because of large territories and multiple duties to which they are assigned. They cannot give all of the necessary attention to service education.

PLENTY OF PILLS FOR THAT OLD HEADACHE, *PRICE*

It's no secret that LP-Gas for heating generally costs more than coal or wood.

So you have to sell the LP-Gas installation in terms of comfort, cleanliness, convenience, room attractiveness.

With low-cost Duo-Therm LP-Gas Heating Appliances you can sell quality, styling and comfort features that are far more competitive than price.

- **Exclusive styling** *that beautifies a room,* with modern or period furniture designs in lovely high-gloss finishes.
- **Exclusive features** *like these for work-free, dirt-free, trouble-free performance.* Quiet, efficient Equaflame Burner. Automatic Power-Air Blower for furnace-type heat circulation. Weather-perfect heating with Comfort-Selector thermostat.

Whether you're selling a house heating or water heating installation, you can depend on this: a Duo-Therm is built to help *you* get the business.

Write for full details about the Duo-Therm Leadership Line for LP-Gas.

More than 2 million warmly satisfied customers...

DUO-THERM

Always the Leader

Division of Motor Wheel Corp. • Lansing 3, Mich.

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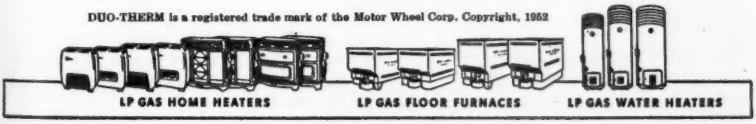


may have a sobering effect upon him and tend to increase the quality of the work which he does for you.

Lest management gain the impression that it is without responsibility in the matter of call-backs, let us make a further analysis of such service calls.

Table 5 is an analysis of 94 service calls as observed by one large marketing organization. At first thought it might appear that the service department was responsible for the majority of calls. "Excusable ignorance" applies to complaints against new service men who had not yet had sufficient training. "Inexcusable ignorance" pertains to those complaints where information has been available to the serviceman.

Make Information Available

In several such instances the service man did not know that the information was available and management failed to let him know that it was available. In other instances service schools had been held, but management had refused to allow the serviceman to attend the schools.

"Carelessness" complaints are a direct fault of the serviceman or the appliance manufacturer. "Avarice" complaints applied to appliances which management sold, knowing that they should not be sold, but did sell because of the immediate profit involved.

Table 6 breaks down the causes of complaints listed in *Table 5* into the spheres of responsibility for complaints. It weakens the case against service departments and should cause both manufacturers and management to do a bit of corrective self-analysis. Their combined responsibility for service complaints totalled 42.44% as against the 37.33% which could be directly blamed upon service departments. Certainly this is not an enviable record for those who are supposed to furnish the man in overalls with the best in appliances and tell him what to do!

Furthermore, this does not distribute with finality the cause of service costs inasmuch as management is responsible for the aptitude and education of the service men which it hires. Granted there is a lack of properly trained gas service men, it is management's job to see to it that they are properly trained, to provide them with available periodicals and books pertaining to service matters and to make it possible for them to attend service schools when they are conducted.

It is possible to eliminate up to 70% of service expense by:

(1) Employing the right kind of servicemen.

(2) Making it possible for them to acquire every bit of service information and training available.

(3) Selling only the best designed appliances.

(4) Insisting upon high standards of service work.

(5) Properly equipping your service department.

(6) Offering a wage schedule with incentives to reduce service complaints.

(7) Eliminating those employes who will not study, learn or show an interest in their work and those who are careless.

Now You CAN Do Something About "that off-peak" LP-Gas Business!

INSTALL PORTABLE Nor-Tex "PONIES"

. . . Make it EASY and CONVENIENT for Your Customers to BUY and USE LP-Gas!

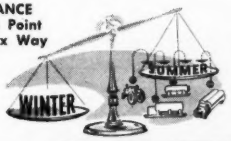
Here are the facts about Nor-Tex "PONIES": 1. They're boosting LP-Gas summer sales! 2. They're balancing winter and summer fuel loads! 3. They're boosting winter quotas!

It's easy to see how several Nor-Tex "PONIES" (strategically placed for good distribution) can substantially boost year 'round sales and quotas for you! Operate them yourself or arrange with highway service stations to dispense LP-Gas for you. Provide these LP-Gas "PONIES" for the convenience of your local customers and the ever-increasing demands of trucks and buses already using this superior motor fuel.

Be sure to continue to explain the advantages of conversions while making your regular route deliveries. The Nor-Tex portable "PONY" can be easily placed on farms and ranches and in truck terminals. You can place them "on-the-job" for contractors and utility companies. Nor-Tex "PONIES" are available in various sizes to provide adequate LP-Gas for any user. Providing better more convenient service for your resident, commercial and transient customers (and selling new ones) balances your winter and summer loads and pays big dividends.

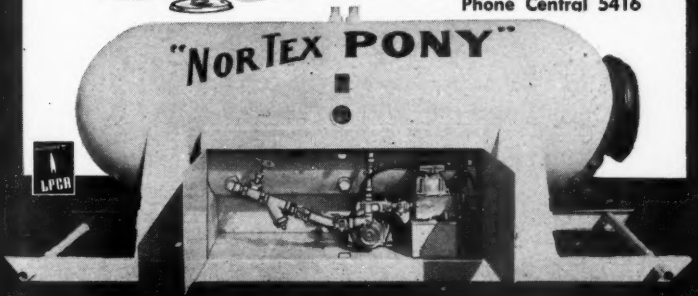
The Nor-Tex "PONY" is designed and built by men with years of bulk plant experience . . . men who are thoroughly familiar with the actual filling of fuel tanks, bottles, etc. Each "PONY" is carefully tested and checked to assure efficient, trouble-free service and complete safety in dispensing LP-Gas. Meets all requirements—U69—W250 Codes. Sizes: 500WG, 700WG, 890WG and 1025WG. Your choice of pumps and accessories.

BALANCE
The 4 Point
Nor-Tex Way



Write, Wire or Phone Us

Nor-Tex
North Texas Tank Co.
P. O. Box 519 • Denton, Texas
Phone Central 5416



Manufacturers of Fine LP-Gas Equipment

TABLE 8. WHAT A POORLY TRAINED SERVICEMAN WITH 73% CALL-BACKS CAN COST YOU IN NEEDLESS SERVICE EXPENSE PER YEAR.

(Calculated on basis of Table 2)

If You Pay Your Serviceman Per Week $$$	And He Makes This Number of Installations								
	1	1	1	1	2	3	4	5	6
	In This Number of Weeks								
	4	3	2	1	1	1	1	1	1
	He Will Do This Number of Jobs in a Year								
	13	17.33	26	52	104	156	208	260	312
	He Will Have Call-Backs on This Number of Jobs								
	9.49	12.65	18.98	37.96	75.92	113.88	151.84	198.8	227.76
	And Your Needless Cost in Dollars Per Year Will Be								
30.00	46.79	62.36	93.57	187.14	374.29	561.43	748.57	935.71	1122.86
35.00	50.49	67.30	100.97	201.95	403.89	605.84	807.79	1009.74	1211.68
40.00	54.28	72.36	108.57	217.13	434.26	651.93	868.52	1085.66	1302.79
45.00	58.08	77.42	116.16	232.32	464.63	696.95	929.26	1161.58	1393.89
50.00	61.87	82.48	123.75	247.50	495.00	742.50	990.00	1237.50	1485.00
55.00	65.58	87.41	131.15	262.30	524.61	786.91	1049.21	1311.52	1573.82
60.00	69.37	92.47	138.74	277.49	554.98	832.46	1109.95	1387.44	1664.93
65.00	73.17	97.53	146.34	292.67	585.34	878.01	1170.69	1463.36	1756.03
70.00	76.96	102.59	153.93	307.86	615.71	923.57	1231.42	1539.28	1847.13
75.00	80.76	107.65	161.52	323.04	646.08	969.12	1292.16	1615.20	1938.24
80.00	84.46	112.58	168.92	337.84	675.69	1013.53	1351.38	1689.22	2027.06
85.00	88.35	117.77	176.70	353.41	706.82	1060.22	1413.63	1767.04	2120.45
90.00	92.15	122.83	184.30	368.59	737.18	1105.77	1474.37	1842.96	2211.55
95.00	95.94	127.89	191.89	383.78	767.55	1151.33	1535.10	1918.88	2302.65
100.00	99.74	132.95	199.48	398.96	797.92	1196.88	1595.84	1994.80	2393.76

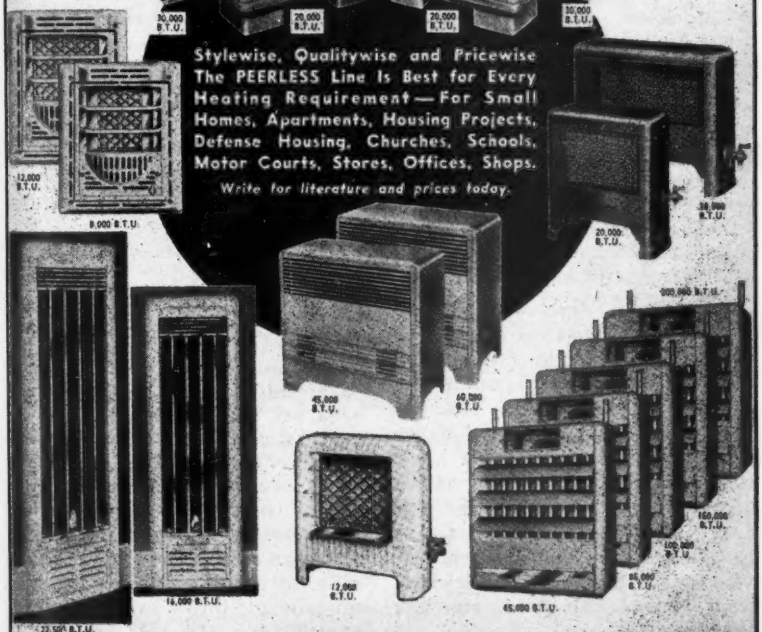
Peerless Gas FIRED HEATING EQUIPMENT

THE COMPLETE LINE FOR ALL Gas NEEDS

Forced Air and Gravity Circulators, Radiant Heaters, Panel Heaters and Fan Type Unit Heaters. 68 Years of progressive advancement has developed this complete, tried and proved line—styles, types and sizes for domestic, commercial or defense heating requirements.

Stylewise, Qualitywise and Pricewise The PEERLESS Line Is Best for Every Heating Requirement—For Small Homes, Apartments, Housing Projects, Defense Housing, Churches, Schools, Motor Courts, Stores, Offices, Shops.

Write for literature and prices today.



YEAR 'ROUND DISPLAYS SUITE 1485 MERCHANDISE MART CHICAGO, ILLINOIS — KANSAS CITY MERCHANDISE MART KANSAS CITY, MISSOURI — SUITE 370 WESTERN MERCHANDISE MART SAN FRANCISCO, CALIFORNIA

PEERLESS MANUFACTURING CORP., —— LOUISVILLE 10, KENTUCKY

Table 7 illustrates the value of educational programs to service departments. You and I know what "Fair" means. Perhaps the customer may get a good gas installation and perhaps he may not. Take the percentages given for the "Combined Organizations," which, I believe, are representative of the liquefied petroleum gas business as a whole. Slightly over 1/3 of our gas dealers have "Good" service departments and only slightly over 1/3 (36.94%) have only "Fair" service departments, with slightly less than 1/3 (29.64%) have poor service departments. Even in the five organizations which attempt to assist their dealers in service training, an average of 36.49% have "Fair" service departments and 27% have "Poor" service departments. This evidence would indicate an appalling lack of interest in the most vital department of the liquefied petroleum gas industry.

Let's get back again to that 73% of call-backs which occur when the gas serviceman has not been properly traind for his job.

Needless $ Expense Shown

Table 8 shows the needless expense in dollars per year which such a man can cost you. Consider a $50 per week man who averages only one gas installation per week. It would not be surprising if his blunders cost you $247.50 per year. Providing that such a man has the making of a competent service man if he is properly trained, what would it cost you to give him that training?

His salary for a week, while attending an intensive service school would be $50 and his expenses for that week might be around $60. Subscriptions to trade papers might be another $10 per year. Service manuals and other books pertaining to the LPG business might cost you another $25 per year. Add these up and you have a training cost of $145, which is $102.50 less than the cost of the "boners" which he may pull as an untrained service man.

As salaries and the number of jobs per week increase, the savings to be effected by proper training of a service man also increases. The incompetent service man receiving $60 per week and making two installations per week can cost you as much as $554 per year because of his ignorance, but his training would cost you only $155—a saving of $399 per year with proper training.

It would seem foolish to spend $554 per year to acquire 76 customers who may lose faith in you when you could spend but $155 and have 76 boosters.

Consider the $399 per year wasted in this last case. Back in Chapter 4, we told you it was possible to make a net profit of 10% on appliance sales. If you waste $399 per year on needless service expense, you are wasting the net profits which might be earned on $3990 in appliance sales.

This could mean 18 ranges, 14 refrigerators, 26 water heaters, or 50 space heaters. Are appliance sales so easily obtained that you can afford to throw away the profits gained from the sale of any of these numbers of appliances? We think not.

Magic Chef

Golden Jubilee Gas Ranges

Corral customers for you with a star-studded sales producing

OLD RANGE ROUND-UP *Package!*

A gigantic national advertising campaign, plus a herd of customer-producing sales promotion and point-of-sale materials, team up in a "package" to make this your greatest Old Range Round-Up ever! Cash in! Write *Magic Chef today* for details!

112,000,000 READERS!

Nationally Advertised In:
Good Housekeeping • Family Circle • Woman's Home Companion
American Home • Better Homes & Gardens • Household • Ebony
Progressive Farmer • Woman's Day • Country Gentleman • Life
Successful Farming • McCall's • Today's Woman • Parents

Tie-in with this star package and watch your sales hop-along!

- AD MOVIES & TV
- ROUND-UP GIVE-AWAYS
- MAILING PIECES
- ANIMATED DISPLAY
- SPECIAL AD MATS
- SPECIAL PRICE TAGS

more women cook on *Magic Chef* than on any other range

PRODUCTS

Dual Gas Valve

MINNEAPOLIS-HONEYWELL
REGULATOR CO.
Minneapolis 5, Minn.

Model: V5151

Application: To provide fully automatic operation of space heaters, wall heaters and floor furnaces.

Description: This device includes thermostat and valve action in a single fixture installed in the gas supply line. By controlling the flow of gas to the burner it eliminates having to turn the heater on and off manually and prevents overheating.

The control, which is basically two valves built into one casting with a thermostat governing the automatic operation, gives the user of the heater the equivalent of two different sizes of burners. Fuel savings are made since no more gas enters the burner than is actually needed to maintain the temperature established by the user.

Domestic Range

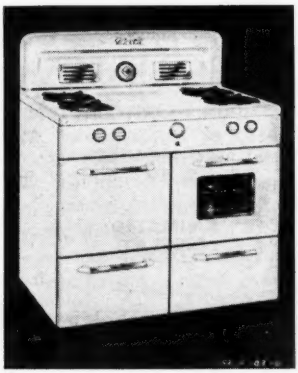
ATHENS STOVE WORKS
Athens, Tennessee

Model: 52-F-83-G

Description: Some of the features of this range include: divided top burners for providing ample working space, handy service drawers with roller bearings, a black lacquered recessed base, and a porcelain enameled oven lining with two non-tilt oven racks which are adjustable for three heights.

The aluminum head burners are constructed to apply even temperature to utensils and the loop oven burner is built for high speed and low temperature. The oven light enables you to look thrugh the glass panel in the oven door and check the baking progress without loss of time or oven heat.

Additional features are a high back guard and a Robertshaw oven temperature control, assuring perfect baking temperature.



Circulating Heater

ARMSTRONG PRODUCTS CORP.
Huntington 12, W.Va.

Model: 5000R Series

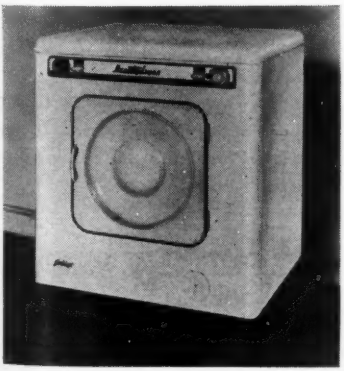
Description: These fully vented models feature built-in draft diverters and completely enclosed combustion chambers. The body and all the interior parts of the circulator are finished in brown porcelain enamel. Pyrex glass panels shield the radiant area, allowing full visability of the radiants. This series is equipped with a pressure regulator and a manually operated Baso pilot burner. The circulator ranges in size between 20,000 to 30,000 Btu.

This series is available with fully automatic safety pilots and various thermostatic controls.

Clothes Dryer

ODIN STOVE MANUFACURING CO.
342 W. 12th St., Erie, Pa.

Model: Beautydryer



Description: Some of the prominent features of this dryer are: the Lovell humidity-temperature control of the drying cycle, suction air intake, increased air circulation, fast rate of evaporation, positive automobile-type sparkplug ignition, and table top working space.

There is no possibility of scorching clothes because of the overhead heating element, which places the heat at the top of the drum. An automatic thermostat shuts off the heating element whenever the temperature goes above 210 degrees, and automatically resets itself when it cools.

A 16 in. opening in the cylinder and a large door permit the easy removal of clothes, and the lint trap is equipped with safety by-pass, which eliminates fire hazard, should an overloaded lint trap clog the blower.

His personal campaign to install Honeywell Controls in his customers' homes has been nearly 100% successful

Wouldn't *you* be happier and feel a lot more confident – if you knew that from *this day on* you'd be spending less and less for service and taking away more and more in profit?

You never have to worry about your profits going down the *service drainpipe,* you know, when you have reliable Honeywell Controls out on your jobs. That's because Honeywell Controls are built to stand up under the most rugged conditions.

They tend to made your overall sales job easier, too—because of their fine reputation. And that means more load, more money all-round.

Get Honeywell Controls, like those shown on the next page, out working for you. They have everything you need for your *LP business!*

MINNEAPOLIS
Honeywell

H HONEYWELL

First in Controls

Clothes Dryer

THE STIGLITZ CORP., INC.
2007 Portland Ave., Louisville

Model: Sun-Aire

Description: This 200-lb., fully automatic, clothes dryer has a rated capacity of 20,000 Btu. The machine has no objectionable vibration and does not cause any interference with radio or television. Built-in sunshine is provided by an ultra-violet sun lamp and the incandescent light bulb illuminates the entire interior of the dryer, enabling you to watch your clothes drying.

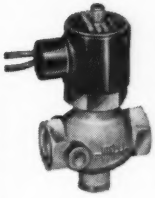
A safety switch automatically turns the gas off when the door is opened and permits the cycle to resume when the door is closed. The gas turns off five minutes before a cycle is completed so that the clothes finish drying with cool air. This feature permits the clothes to be handled at once with ease.

The top lint trap, located at the top of the dryer, can be reached and emptied without any inconvenience. Fast-moving air takes the moisture out of the clothes and releases it out of doors, thus eliminating foggy windows and unhealthy dampness.

Want to feel like a "million," too ?

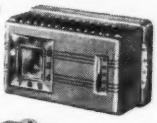
Then install trouble-free Honeywell Controls like these in your customers' homes !

Honeywell Solenoid Gas Valve, Model V835

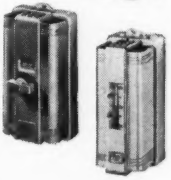


It's rugged, dependable, and low in cost! Valve seat disk wears practically forever. Hammer-action type plunger and sturdy centering disk assure positive valve opening and closing even under stickiest of gas conditions.

Control the V835 with any of these fine thermostats



1) *The Chronotherm* lowers temperature at night—raises it in the morning, all *automatically.* 2) *Time-O-Stat* provides lower night temperatures and *automatic* morning pick-up. 3) *Comfort Thermostat* is low in cost, accurate, dependable, simple to calibrate and adjust.



For more information, call your nearest Honeywell office. Or write Minneapolis-Honeywell Regulator Company, Dept. BN-8-151, Minneapolis 8, Minn.

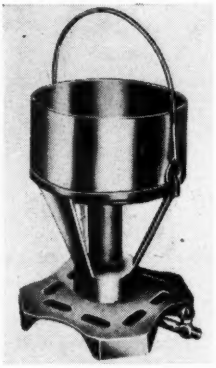
MINNEAPOLIS **Honeywell**

First in Controls

Plumber's Furnace

WELDIT, INC.
992 Oakman Blvd., Detroit

Model: Floor and Tank Top



Application: For rapid melting of lead, babbitt, solder, glue, tar, asphalt, paraffin and type metals.
Description: The positive control type furnace is of heavy duty design yet is lightweight for portability. Its rugged construction enables it to handle the heaviest jobs. It has a rated capacity of 65,327 Btu per hour and can be adjusted from a low, warming heat to a high heat.

The floor model has a height of 10 in. and weighs 14 lb., while the tank top model has a height of 8¾ in. and weighs 9 lb.

Room Heater

DEARBORN STOVE CO.
5830 N. Pulaski Rd., Chicago

Model: Guard-O-Matic Series

Description: This series is available in 30,000 45,000, and 65,000 Btu capacities. A "touch cool" cabinet is the result of specially designed baffles and not insulation. The baffles rapidly circulate the room air over the newly designed drawn-steel, oxide-finish combustion chambers and heat exchangers and force the heated air out of louvers located at the top front of the heater. This feature helps to achieve more even temperatures throughout the room and more accurate thermostatic control. The radiants are sealed behind pyrex glass with newly designed dress guards and reflectors combined to spread the radiant heat over a wide area.

These heaters are equipped with 100% safety pilot and are available with a choice of three types of thermostats in addition to the Baso safety valve.

THERE'S HEAT MAGIC IN THE NAME *Empire*

EMPIRE *Gas*

FLOOR FURNACES

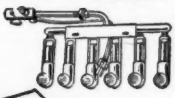
WILL

- INCREASE YOUR SALES
- SATISFY YOUR CUSTOMERS
- INCREASE YOUR PROFITS

EXCLUSIVE WITH EMPIRE

The FAMED

"Thriftmatic" *Gas* BURNER



But, no Magic is necessary to sell EMPIRE GAS FLOOR FURNACES.

A GOOD NAME and a GOOD PRODUCT will always sell.

EMPIRE

See your local EMPIRE REPRESENTATIVE or write direct to

STOVE COMPANY

BELLEVILLE, ILLINOIS

WORLD'S LARGEST MANUFACTURER OF *Gas* FLOOR FURNACES

Restaurant Range

THE MALLEABLE STEEL RANGE MFG. CO.
South Bend, Ind.

Model: South Bend 3004

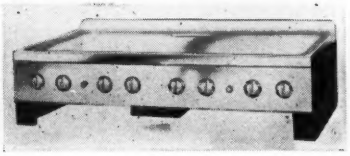
Description: The cooking top of this range is 58 in. long and 29 in. deep. This model features four open top burners, a giant cast iron steak griddle (35 in. by 29 in.) and automatic heat control.

The model with its heavy, all welded chassis, is built for years of hard service. The ceramic hi-speed broiler is an additional attraction of the South Bend range. Oven specifications are: 23 in. wide x 24 in. deep x 14 in. high.

Griddle

COMSTOCK-CASTLE STOVE CO.
Quincy, Ill.

Model: Economy Patrician No. 640



Description: This model is equipped with eight tubular burners and push button lighters. It features a polished cast iron griddle plate which is easy to cook on and to keep clean.

The grease drain across the back of the griddle automatically empties into a large grease drawer. A stand and a high shelf are available as accessories.

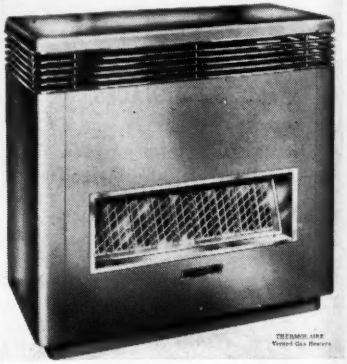
Vented Heater

BIRMINGHAM STOVE & RANGE CO.
Birmingham, Ala.

Model: Thermolaire

Description: This series of gas heaters includes three models which are equipped with Baso automatic safety pilots and Robertshaw throttling and snap-action thermostats. Model CVR-30-BB has a Btu input of 30,000, CVR-45-BB, 45,000 and CVR-60-BB, 60,000.

The radiants on each of the units are protected with pyrex glass panels. All of the models are AGA approved.



Domestic Range

CRIBBEN & SEXTON CO.
700 N. Sacramento Blvd., Chicago

Model: Universal

Description: This range is available in two models. Both ranges feature a divided cooking top, a 17 in. oven and a 17 in. in-a-drawer broiler.

The Whitehall model has simmer-save burners with a solid oven door while the Shelburne has clic-set burners, a glass oven door and an oven light. Mechanical timers, back rail lights, one-piece tops, plate sized burner bowles and two storage-drawers are additional attractions of both of the ranges.

New Literature

Another "first" for Delta Tank Manufacturing Co., Baton Rouge, La., is their unusual merchandising promotion piece, a "Kidde Color Book" now being offered to all Mix-O-Gas dealers for their fall Fair promotions.

The coloring booklet, in addition to illustrated sales information on LPG and Mix-O-Gas storage systems, features a number of drawings of LPG installations suitable for colorng. The pamphlet, aimed at both children and their parents, is expected to have a longer "life expectancy" around the customer's home than most sales literature.

In celebrating the company's 50th anniversary, **Pressed Steeel Tank Co.**, Milwaukee, Wis., has published a booklet entitled "Design for Progress . . . History of an American business."

This booklet describes the progress of a number of great American industries, and relates the contributions that Hackney metal containers and deep drawn component parts have made to their success. Complimentary booklets may be secured by writing the company.

A new 28-page catalog, No. 11, has been released by the **Howe Scale Co.** This publication, which is a condensation of the company's 200-page catalog, features the Howe scales with beam indication, the tape-drive dial, weightograph projection, and the teleprint electronic remote weight recorder. Also included in the catalog is a page describing Howe hand trucks and a list of branches with sales and service departments.

Catalog No. 11 is available at the company in Rutland, Vt.

Western Gas & Power Opens Spokane Valley Showroom

CELEBRATING their growth and completion of a new office and showroom at Dishman, Wash., near Spokane, Western Gas & Power Co. recently staged a gala grand opening for its $60,000 plant, according to Glen F. Fansler, general manager.

Even before the coming of natural gas, Western Gas found acceptance of its LPG spreading rapidly since its first offices opened in Greenacres, later moving to Veradale, and now the combined showroom and bulk plant at Dishman, Wash.

At the new plant, a service station handles the growing number of conversions among truck, tractor and automobile owners in the area. Ray Jenkins of J and J Sales and Service handles the carburetion conversions for the company.

Congratulatory advertisements and publicity articles were featured in an issue of the "Spokane Valley Herald" to announce the opening of the 'Pro-Gas' firm. Merchandise prizes, free hot cakes and sausages, and free Hawaiian orchids for the ladies were among the attractions.

The building faces a main highway and its front is almost entirely of glass, affording an excellent view of the vast interior display from the street. Various gas appliances are displayed in orderly arrangement allowing easy customer flow throughout the store.

Maynard Bangs is sales manager, Rudy Rossing is installation and service supervisor, William Shores is office manager, and Leroy Jenson is L.P. gas delivery manager of the company.

Predict 50% Hike In Florida LPG Consumption for 1952

Sale of liquefied petroleum gas in Florida may increase by as much as 50% this year over 1950.

Sales amounted to 59,561,000 gal. in 1950, the latest year for which figures are available, the State chamber of commerce has reported.

Indications are that in 1952 the daily peak demand will be 440,000 gallons throughout the state, according to the chamber.

The 1950 sales volume was made up of 31,693,000 gal. of propane gas, 1,078,000 gal. of butane and 27,790,000 gal. of "mixtures."

Butane-Propane POWER SECTION

Installations CARBURETION Conversions

L. P. gas provides economical power for both engines in this transit-mix truck

LPG Cuts Texas Bus Line's Costs 25%

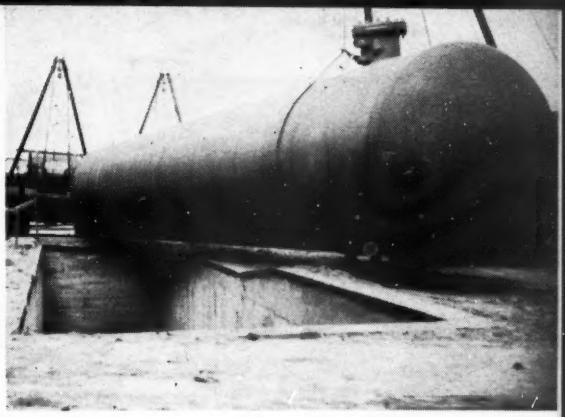
Amarillo transit firm converts ACF-Brill units; provides convenient underground storage and reduces oil changes.

UTILIZING L. P. gas for power, a fleet of city buses in Amarillo, Tex., provide rolling evidence of the safety and efficiency of this modern fuel in the operation of an intra-urban transportation system.

Leonard Nussbaum, co-owner of the Amarillo Bus Co., reports that records maintained on 10 ACF-Brill buses, converted by the company to use LPG, show operating costs from 21 to 25% less than costs of operating the same type of buses on gasoline. Mr. Nussbaum also pointed out that in converting the buses and providing for LPG storage, his company met or exceeded the rigid safety requirements of the Texas Railroad Commission and all fire and safety codes of the City of Amarillo, despite the fact that storage facilities are located inside the city limits of Amarillo.

A major obstacle most municipal bus companies have to overcome before converting to propane is that of providing easily accessible storage. If storage is too far from

Arnold and Leonard Nussbaum watch one of their ACF-Brill buses being fueled with L. P. gas in front of the bus company garage.



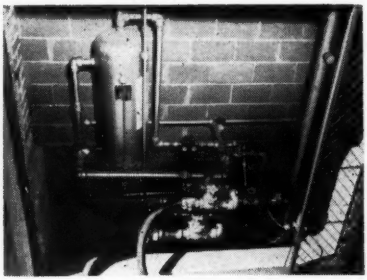
The LPG storage tank, pictured here being lowered into the concrete vault on the Amarillo, Tex., bus company's garage property, is 54 ft. long, 7 ft. in diameter and weighs 26 tons. It has a water capacity of 15,000 gal.

the bus company garage, much of the cost-per-mile saving from the use of LPG is offset by extra miles driven to re-fuel equipment. The Amarillo firm solved this problem satisfactorily with the installation of a 15,000 gal. underground tank adjacent to their garage. The tank is 54 ft. long, 7 ft. in diameter, and weighs 26 tons empty. Built by Superior Manufacturing Co. of Amarillo it is installed in a reinforced concrete vault. Railroad Commission-approved plans for the tank and its installation were prepared by J. Woodward Martin, LPG sales head for Shamrock Oil and Gas Corp., Amarillo. Total cost of the tank and the installation was approximately $17,500.

Conversion of the Amarillo Bus Co.'s equipment began in April, 1951, when the firm bought four ACF-Brill units already equipped with Ensign conversion equipment. These four buses were powered by International Red Diamond engines. Then, with plans approved for adequate storage facilities, the company switched six more of its ACF Brills to propane fuel, using Beam conversion equipment.

Installation of the 15,000 gal. storage tank at the company's garage was completed early in January of this year. Following inspection and approval by the Railroad Commission and by Amarillo city officials, the way was paved for the company to take full advantage of the cost reducing possibilities of L. P. gas as motor fuel. With 10 buses already using LPG, the company expects to convert five more as rapidly as possible. Ultimately, the bus firm anticipates LPG operation of their entire fleet of 51 buses.

The Amarillo Bus Co. maintains continuous detailed records on the cost of operation of each bus. According to these records, the cost of operating LPG powered buses has varied from 21 to 25% less than the cost of operating the same kind of units powered by gasoline. With 15 buses using the new fuel the company estimates that over



Equipment used in regulating flow of LPG to and from the Amarillo bus firm's storage tank near the bus company garage.

a period of three years this fuel saving will pay the cost of the storage tank and its installation, as well as the estimated $300 per unit cost of converting the buses.

An important part of converting the buses was to step up the compression ratio in order to take full advantage of the higher octane rating of L. P. gas. Compression ratios of the 10 units converted by the Amarillo firm have been stepped up to 8 : 1 ratio.

Officials of the bus company say that buses using propane as fuel operate more smoothly and develop more power than gasoline powered buses. They also report that the use of LPG practically eliminates disagreeable exhaust fumes. The bus operators themselves prefer to drive the LPG powered units.

An additional saving realized by the Amarillo bus firm in the operation of the LPG powered units has resulted from greatly increased mileage between oil changes. Walter Nussbaum, who has charge of the company's maintenance, says that buses using propane or butane have been operated up to 16,000 miles between oil changes, compared to a practical maximum of 6,000 miles for gasoline powered units. Laboratory tests of the crankcase oil after 16,000 miles of use in the converted engines showed that it was still serviceable and providing adequate lubrication.

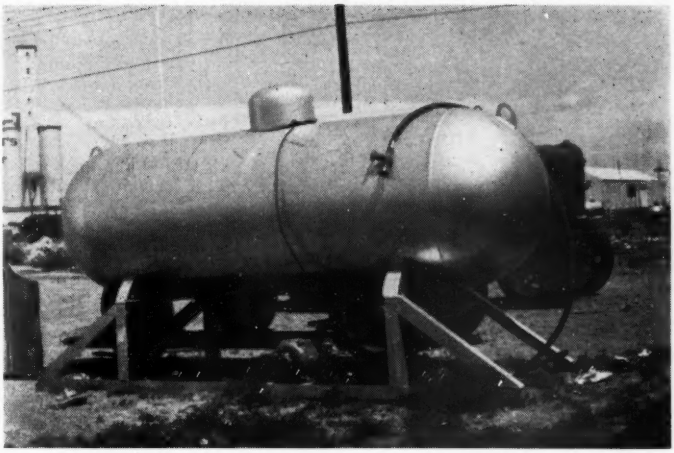
The company anticipates further operational saving through lower maintenance costs on engines using butane or propane. The LPG powered units, however, have not been in operation long enough for sufficient maintenance data to be compiled for comparison.

Owned by five members of the same family, the Amarillo Bus Co. is rated as one of the most efficient intra-city transportation systems in Texas. George and Martin Nussbaum, brothers, are the two elder members of the firm. The other three Nussbaums, who are co-owners in the business, are Walter, son of George, and Arnold and Leonard, sons of Martin. All five men are active in the operation and management of the company.

LPG Seen Cutting Into Fuel Oil Sales

Liquefied petroleum gas is "definitely encroaching" on the market for heating oils and on the market for gasoline and diesel fuels, according to an official of the Petroleum Administration for Defense.

Lawrence W. Lee, director of PAD's division of distribution and marketing, told this fact to the Indiana Independent Petroleum Assn., at Fort Wayne recently.



Southwest Gas Equipment Co., Liberal, Kan., supplies skid tank with pump and meter to new fleet customers pending installation of permanent storage.

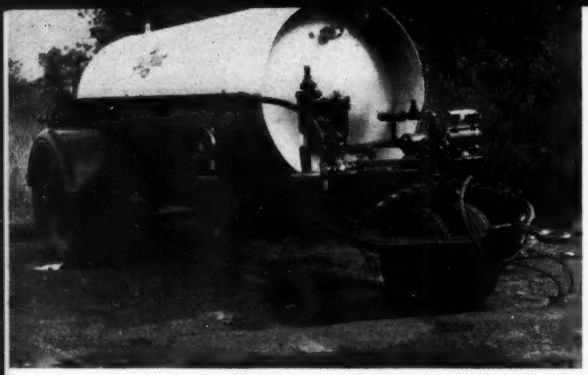
"Make It Easy To Buy"

5 ideas that pay off in selling conversions

GREENWOOD & CO., Gainesville, Tex., had the customary load balancing problem due to winter heating loads on domestic sales. About three years ago they undertook to sell carburetion as a means of building up summer volume. Most of the local farms are small, and tractors are likewise small, so their annual consumption was low. It was very difficult to interest these farmers in the conversion investment.

After using the usual advertising and sales promotion methods for about two years without noticeable results, Fred Greenwood, president, made a careful analysis of the situation, which led his organization to develop a sales plan that put life in the program and began to show results.

They put on a drive to install J & S vapor carburetion systems on a "no-money-down" basis, whereby the customer paid off the installation cost of the equipment by paying 1c extra per-gallon for his fuel until the charge was amortized. In order to fill the tractor tank, he bought the necessary hose and valve at the standard price, but this was his only immediate cash outlay on the conversion. Nothing was done to the engine except to install the "spud-in" and fuel system, unless the engine needed repairs to make it usable.



Gas Heat, Inc., Portland, Ore, has two trailer mounted tanks for use of customers during tests of carburetion conversions.

Raising the compression was recommended at the time the engine was put in the shop for overhaul.

It was figured that with the extra money coming in for fuel, the running investment in carburetion equipment would just about equal the amount which was witheld by discontinuing the tractor conversion advertising program for the period in which the "no-money-down" plan was operating. While there is some fluctuation in this relationship, the results have been financially satisfactory, and with 40 conversions made up to the end of May, Mr. Greenwood reports that the beneficial effect on his summer load was already clearly apparent.

It is expected that this plan will be continued until 100 conversions have been made, when the management feels that enough progress will have been made to enable them to return to an outright sales program on the conversions.

These vapor installations are being made in such a way that they may be readily converted to liquid withdrawal systems. Several of the early customers, now thoroughly sold on the advantages of propane operation, have already made the change to the liquid system. Significantly, they are willing to pay cash to get these added advantages, once they are sold on the economy of propane fuel.

•

Minnesota Valley Natural Gas Co., operating bulk fuel service out of Mankato and Shakopee, owns a Minneapolis-Moline factory-equipped propane burning tractor which they use as a demonstrator in promoting the sale of LPG as engine fuel. Any farmer who wishes to try the tractor, or is interested in propane as a power fuel, may borrow the tractor and a portable supply tank mounted on a trailer, and conduct whatever tests he may desire in his own fields.

Minnesota Valley Gas is not particularly concerned about whether the farmer buys a new factory equipped tractor or converts his old tractor. What they are after is the gas load. They sell and install Century carburetion equipment as a convenience to farmers who do not have their own facilities for conversion.

By the use of this demonstrator, they have established at least 16 tractor fuel accounts, which they estimate have already consumed four carloads of gas.

•

A number of conversion shops around the country are using a "pay out of savings" plan to stimulate the

WHAT'S WRONG WITH THIS PICTURE?

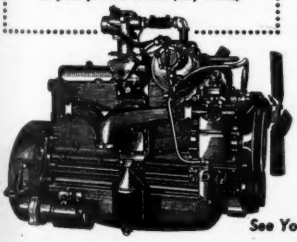
It happens!...

A bald-headed practitioner in a hair clinic sells hair restorer. And some LP-Gas suppliers are still hauling LP-Gas in trucks that burn *gasoline*.

You can't blame the supplier's customers and prospects for thinking, "If it's good enough for *me*, why isn't it good enough for *him*?" It just makes good sense to practice what you preach—using LP-Gas.

NOW AVAILABLE . . .

- **Reo Trucks with *Gold Comet* LPG Engines**
- **Reo LPG Conversion Kit for the 331 Reo Gasoline Engine**
- **Complete Reo *Gold Comet* LPG Engine for replacing old, worn-out engines in your present trucks (any make)**



If you're a supplier or hauler of LP-Gas, you know all the advantages of your product. You know that LP-Gas gives greater fuel economy.

Why not profit from all these benefits yourself . . . haul LP-Gas *with* LP-Gas. Convince your prospects that you're really sold on what you're selling. It's the key to greater sales, greater savings, and greater profits!

Now, for the first time, you can haul LP-Gas in REO trucks specially designed and engineered for the exclusive use of LP-Gas. The new REO *Gold Comet* LPG engine is already making trucking history. It makes full use of LP-Gas fuel characteristics, and has demonstrated outstanding fuel and maintenance savings in grueling field tests.

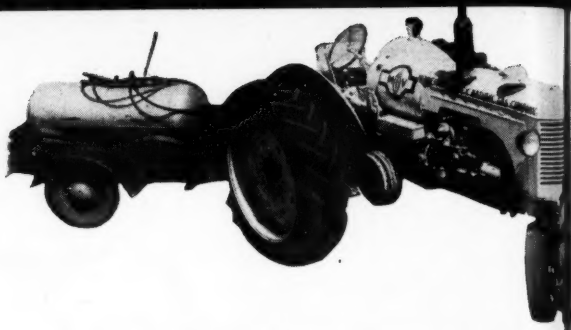
For hauling LP-Gas, the REO 142 hp *Gold Comet* LPG engine surpasses everything else on wheels.

DOLLAR-WISE...SALES-WISE...

it's smart to haul your LP-Gas in REO LP-Gas trucks.

See Your REO Dealer Today for Full Particulars or write to REO MOTORS

REO MOTORS, INC., LANSING 20, MICHIGAN



Minnesota Valley Natural Gas Co. will lend a tractor and fuel trailer to farmers wishing to find out about using propane for tractor fuel.

sale of conversions on trucks and tractors. This is effective, and works out well for all concerned, where the fuel delivered to the customer's tank is used exclusively for supplying vehicles. A typical plan of this type widely used is to arrange for 20 or 25% down payment on the conversion cost, billing the LPG fuel at the corresponding price of gasoline.

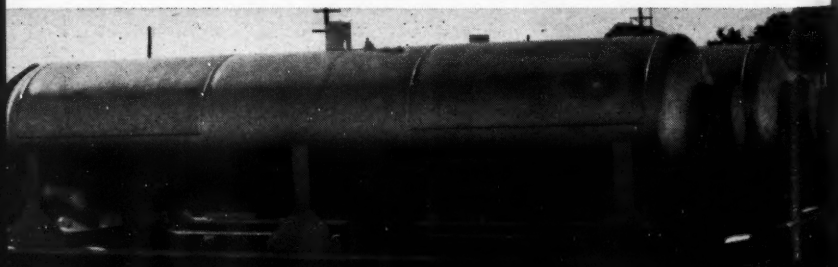
The difference between the price paid and the regular price of the LPG is credited toward the purchase of the installation. After the equipment account is paid off, the fuel is billed at the regular price. Since a truck doing heavy hauling will pay off the price of the conversion in a very few months where a differential of 5c or more exists, the economy of the butane-propane operation is emphasized with the operator.

Southwest Gas Equipment Co., Liberal, Kan., goes all the way in making it possible for a new fleet operator to have a source of fuel. They have a 1000-gal. skid tank equipped with pump and meter, which is available for temporary use during a test period, or pending installation of the fleet owner's own fuel installation, or for operators basing their fleets in temporary locations. Gas Heat, Inc., Portland, Ore., has two trailer-mounted tanks which are devoted to the same uses discussed above.

Winton Automatic Gas Co., Beaumont, Tex., has a number of 1000-gal. skid tanks which are rented at a nominal rate to rice growers to supply fuel for their irrigation pumping engines. These tanks are returned to the Winton plant each winter for painting, maintenance work where necessary, and storage.

The use of these large tanks permits maximum flexibility of delivery schedules, and eliminates the need for such frequent trips as would be necessary with the smaller tanks which the rice growers would be more likely to buy if they provided their own tanks. The rice growers like the deal because it eliminates the largest part of the investment required to convert their engines.

Winton Automatic Gas Co., Beaumont, Tex., rents 1000-gal. skid tanks to rice farmers pumping with butane.

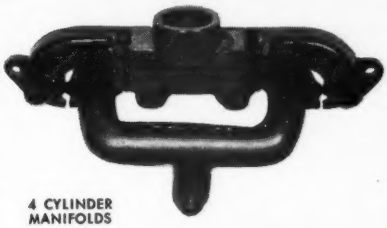


JOHNSON'S

HIGH COMPRESSION PISTONS
MANIFOLDS • PUMPS

Butane Manifolds for John Deere Models "G," "A," "B," "D"
Butane Manifolds for International "H" & "M"
Butane Manifolds for Allis Chalmers "W," "WC," "WA," "WF"
Water Pumps for John Deere Models "G" & "A"

Write Today for Price Lists and Dealer Discounts



4 CYLINDER MANIFOLDS

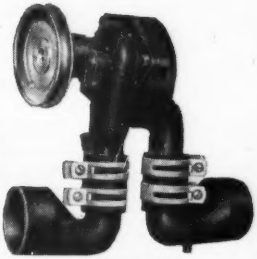
JOHNSON MACHINE SHOP

914 East Howard St., Pontiac, Illinois

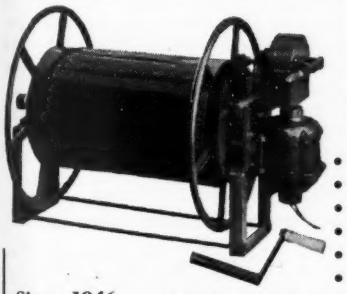
Southern Distributor: Connally Bearing Co., Amarillo, Tex.

COLD MANIFOLDS

ALUM. DOME-HEAD PISTONS



WATER PUMPS



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with 6 volt explosion proof motor
Gear or chain drive. Priced with or without clutch.

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LOS ANGELES 32, CALIF.

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Underwriters Approved

DIX *Butane-Propane* CARBURETORS

For cars, trucks, tractors, Sta. Engines.
They're called "The Profit Line"

***BECAUSE* — the DIX is —**

The Simplest of them all
The Easiest to Install
They're no trouble at all

Immediate Delivery from Stock
Write for Dealer Information

DIX MANUFACTURING CO.
3447 East Pico Blvd.
Los Angeles 23, Calif.
Export: 301 Clay St., San Francisco, Calif.

Chrome-Plated Sign Promotes Butane Power

If "It Pays to Advertise," Paul Hughes of Butane Equipment Co., Los Angeles, Calif., believes every possible means should be used.

One of his latest ideas is a chrome-plated metal sign, "Butane-Powered By Beco," which he mounts on all vehicles converted to LPG carburetion at his plant, 1708 S. Soto St.

Mr. Hughes was one of the first to sell and promote L. P. gas equipment and appliances in the Los Angeles area. He has long operated his combination retail-wholesale sales and service plant at the Soto St. address where a full line of appliances and equipment for L. P. gas can be found. He also maintains a tank fabrication plant at this location under the name Soto Welding Works.

Under the supervision of L. E. Mobarry, Mr. Hughes added carburetion installation to his business several years ago. The company now makes an average of five truck and tractor L. P. gas carburetion installations per week. Mr. Mobarry looks forward to continued activity in this phase of the LPG industry and believes that carburetion sales for both trucks and autos will increase in the years to come.

The Beco organization specializes in Beam and Cyclone carburetion equipment at the present time.

NEW PERFORMANCE . . .
NEW ECONOMY . . .
with
BEAM
BUTANE - PROPANE CARBURETION
Beam carburetion assures instant starting, hot or cold, without use of primer or choke. Straight LPG carburetors up to 2½ inches are available.
DEALER INQUIRIES INVITED
THE PARKDALE COMPANY
2642 Lacy St., Los Angeles 31, Calif.

Tri-Gas Corp. Formed By Three Missouri Dealers

L. C. "Lanny" Fritts, Economy Gas Co., Springfield, Mo., Charles Peterson and E. J. Kroupa, also of Springfield, have formed a corporation which has purchased the partnership interest of Paul Anderson in Economy Gas Co., Springfield, Mo., and also the Brooks Gas Co. of Marshfield, Mo.

The names of the two companies will ultimately change to Tri-Gas Corporation, the name of the new corporation. L. C. Fritts is president of the new company.

Southeastern Service School Features LPG Safe Practices

The sixth district education committee of the Liquefied Petroleum Gas Assn., in cooperation with the Georgia Tech engineering extension division, conducted the fourth Southeastern L. P. gas Service school at Southern Technical Institute, Chamblee, Georgia, June 9-12. Herman Paris, chairman of the sixth district education committee, made the introductory address and introduced the speaker. More than 80 students registered for the course.

The school, designed to furnish instruction in the installation and servicing of LPG appliances and equipment, gave special emphasis to the safe handling of L.P. gas.

Top instructors from the industry comprised the faculty for this short course, and the instruction was handled on a lecture, demonstration, and discussion basis, with a maximum of live demonstrations using modern equipment typical of that in use in the industry today. Moving pictures were also effectively used in these lectures. A. R. Padgett, district manager, Phillips Petroleum Corp., Atlanta, opened the progam with a lecture on "Safe Practices in Handling of L.P. Gas." Pierre Vinet, director, sales promotion, Geo. D. Roper Corp., Rockford, Ill., gave the closing address on "What the Service Man Should Know."

Classes and demonstrations were conducted by H. W. Reinken, Jr., A. O. Smith Corp., Union, N.J.; Wendell Fields, Jr., A. O. Smith Corp., Atlanta; Ben King, Hardwick Stove Co., Anniston, Ala.; W. W. Bilderback, Servel, Inc., Evansville, Ind.; R. H. Wherry, Gas Equipment Supply Co., Atlanta; Richard Bryant, Automatic Gas Co. of Columbus, Ga.; Ben Sigmon, Rulane Gas Co., Charlotte, N.C.; George Kolloch, Peerless Manufacturing Co., Atlanta; C. E. Gunthorpe, Bryant Heating & Equipment Co., Atlanta; C. B. De Berry, Georgia State L.P. Gas Inspector, Atlanta; O. V. Branson, William Wallace Co., Atlanta; Robert Boehm, General Controls Corp., Birmingham, Ala.; and H. R. Coile, Minneapolis-Honeywell Regulator Co., Atlanta.

Tom Fields, Southeastern district secretary for LPGA, attended the school and assisted in coordinating the program.

Group of Short Course students observing a three-ton International truck equipped with Ensign L.P. gas carburetion. This truck has 62-gal. dual side-mounted L. P. gas tanks.

Richard Bryant, Automatic Gas Co. of Columbus, Ga., giving a lecture-demonstration on L.P. gas carburetion at Southeastern LPGA service school.

HOWELL G. EVANS

R. G. HALVORSEN

The Board of Directors of the **Hamilton Manufacturing Co.**, Two Rivers, Wis., has elected Howell G. Evans, former vice president in charge of sales, as senior vice president. R. G. Halvorsen, former sales manager of the company's contract-distributor div., succeeds Mr. Evans as vice president in charge of sales for all of the company's eight lines. Mr. Halvorsen will be directly responsible to Mr. Evans, who will devote a large portion of his time to long-range sales planning and over-all policies.

C. S. O'Neil was elected by the board as vice president in charge of research.

In line with the expansion of its field sales organization, **Servel, Inc.**, Evansville, Ind., has appointed Edward B. Mockel and C. Sidney Johnston, Jr., Servel sales veterans, as regional merchandising counselors and Robert B. Purkett, former dealer representative in the Detroit sales branch, as a special sales representative on the factory staff in Evansville.

Servel engineers and designers have received a "modern design award" plaque from the editorial staff of *Design News* magazine for "excellence of general mechanical design."

The **J. B. Beaird Co., Inc.** has made several sales representative additions to its L. P. gas system sales division. The new appointments include: Harold H. Cochran, Wisconsin-Minnesota-Dakota area, Earl Durham, Iowa-Upper Illinois area, and Rex E. Wheeler, Kansas-Nebraska area.

General Controls Co. has added a new office to its 31 branch offices throughout the U.S. Joe Crandley, former manager of the Baltimore office, has become district manager of the new Hartford branch. Mr. Crandley's new position entails administrative direction of General Controls' Massachusetts subsidiary, Automatic Controls Co., plus his duties as Hartford manager.

Frank Murray, sales engineer at Automatic Controls, is now in charge of the Boston office, and Russell Strongman has been appointed manager of the New York City branch office.

The Warren Petroleum Corp. has been chosen to supervise the construction and to operate all facilities of the Ringwood natural gasoline plant in Major County, Okla. The basic equipment installation included facilities to gather 50 million standard cubic feet of natural gas, compress it from atmospheric pressure to 750 lb. pressure for processing to produce in excess of 80,000 gal. of liquid products and over 40 million cubic fet of residue gas delivered to the Oklahoma Natural Gas Co.'s transmission pipeline network, all qualities being on a daily basis. The product storage consists of thirteen 1000-bbl. pressure tanks for a total of over 500,000 gal.

The plant has gas processing facilities necessary to produce 32,000 gal. of natural gasoline, 24,000 gal. of butane, 24,000 gal. of propane daily, and major equipment units for absorption, distillation, fractionation, dehydration, treating, storage and loading liquid products into tank cars and tank trucks for shipment.

Some of the equipment features, incorporating late industry developments, include: (a) the extensive use of aerial coolers for engine lube oil and jacket water and for hydrocarbon condensing, (b) the recovery of in-

Warren Petroleum operated Ringwood natural gasoline plant, Major County, Okla., has facilities to produce 48,000 gal. of LPG daily.

herently available energy from a high pressure oil stream, (c) the frequent use of pneumatic control for flow and temperature, (d) the employing of hydrocarbon vapors to strip the absorption oil instead of generating steam for this purpose.

John P. Krumech has been appointed vice president of **American Car and Foundry Co.'s** subsidiary, Shippers' Car Line Corp. His duties will include sales and traffic work.

Robert G. Brossard, formerly with ACF in Cleveland, has been named sales agent in the company's New York district office.

R. Eby has been appointed divisional sales manager of **The Coroaire Heater Corp.** Since Mr. Eby has had a diversified background in heating equipment, engineering, and home equipment sales and merchandising, the company believes he will contribute measurably in the management of its expanded sales organization.

John C. Reed, 50, vice president, research, of **American Radiator & Standard Sanitary Corp.**, died recently in Louisville, Ky., after a brief illness.

Mr. Reed held important positions in both manufacturing and research operations during his career with American-Standard. The new consolidated plumbing and heating research laboratories, which are soon to be officially opened in Louisville were constructed under his supervision.

Herwart Werker, former manager of American-Standard's heating div. of the research dept. was appointed director of research. He will direct

TOP PERFORMANCE
Model SP-45 Blue Flame Gas Log Conversion Range Burner fits any firebox, burns any type of gas. Quiet, efficient, automatic.
...and TOP PROFITS! You can increase your profits and insure customer satisfaction by selling Heatbath precision-built conversion gas burners — the finest available anywhere. Complete line for bungalow, combination and dual oven ranges and space heaters. Thermostatically controlled. Utility approved.
Write for full details, specifications and dealer possibilities now!
HEATBATH APPLIANCES
I N C
P. O. Box 78 Springfield, Mass.

program aimed at doubling sales and production of the firm's chief product, Circulaire vented wall heaters.

E. E. HAWLEY

E. E. Hawley, vice president of **Pacific Gas Corp.**, has been named president of the Gasair Corp., a partially owned subsidiary of PGC. Mr. Hawley will head the Gasair direct-fired vaporizing and air-gas mixing equipment operation. According to Mr. Hawley, the acquisition of Gasair substantially strengthens PGC's position in the liquefied petroleum field.

James H. Binger, former vice president and general manager of **Minneapolis-Honeywell Regulator Co.**'s Belfield Valve div. in Philadelphia, has been elected vice president of the company. His new headquarters will be at the company's executive offices in Minneapolis.

More than 100,000 architects, heating and ventilating engineers, school and hospital administrators, contractors, railroad operating technicians and other industry representatives viewed Honeywell's "Parade of Progress" during the 19 months the caravan of automatic control devices was on the road.

Max Tappero has been appointed New England district manager of the Janitrol domestic-commercial div. of **Surface Combustion Corp.** He will work with the Eastern Appliance Co., Janitrol's New England distributor, in sales training, sales planning and

- Holds Pressures—Prevents Leakage
- Stops Gasket Sticking and Failure From Leakage
- Prevents Thread and Stud Galling or Seizure
- Never Hardens—Joints Easily Separated
- Prevents Rust and Corrosion
- Insoluble in All Petroleum Products

PLS

PLS is the one dependable sealing compound used by bulk plant operators everywhere. It's a sure-cure for costly leakage and maintenance.

PLS is insoluble in a wide variety of services, including any petroleum liquid or gas . . . seals effectively at temperatures to 550°F. and pressures to 6000 psi.

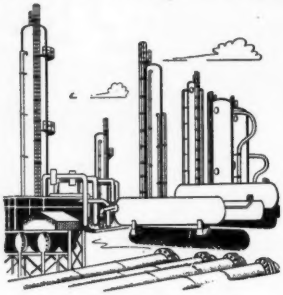
TRY A SAMPLE AT OUR EXPENSE. Write Dept. B-8. 1838 Cuyler, Chicago 13, Illinois, for your free sample jar of PLS.

Approved by Underwriters' and the Butane Propane Institute of Louisiana.

CRANE PACKING CO.
CHICAGO

CITIES SERVICE

LIQUEFIED PETROLEUM GAS



- A DEPENDABLE SOURCE
- UNIFORM PRODUCTS
- A CAPABLE SUPPLIER
- TWENTY-FIVE YEARS EXPERIENCE

. . . in L.P. gas also Cities Service means Good Service

CITIES SERVICE OIL CO.

Delaware

Bartlesville, Okla.
Chicago, Illinois

Other Sales Offices

Cleveland
St. Paul
Kansas City
Toronto

service activities. John G. Robinson has been appointed Janitrol sales engineer in the Buffalo territory. He will specialize in contact and service to the architects and builders of the Rochester area.

Frank H. Adams, president of Surface Combustion, was recently presented with a glass "key to the city" in a ceremony recognizing the 25th anniversary of the company's Toledo plant and Mr. Adams' 40 years of service with the firm.

J. EARLE DAVIES

J. Earle Davies has been named vice president of the Abbott Equipment Co., Bellows Falls, Vt.

Mr. Davies has served several years with the New England Power Co., Lawrence, Mass., and has had an extensive background in the gas heating field.

C. C. Turner Joins Fuelane Corp. To Direct Educational Training

Plans for expansion of the dealer educational program of Fuelane Corp., Liberty, N.Y., have been accelerated with announcement of the appointment of C. C. Turner, prominent industry authority and author of the "Bottled Gas Manual" and "Handbook of Butane-Propane Gases" as Educational Director. Fuelane Corp. serves dealers in seven northeastern states from Maine to Maryland.

Author of trade magazine articles for 11 years including the Management series in BUTANE-PROPANE *News*, Mr. Turner formerly was associated with the Home Gas Corp. of Housatonic, Mass., and resided in Portland, Me.

EATON SERVES THE WEST
BORDER TO BORDER

The West's Leading Manufacturer & Distributor of LP Gas Equipment

TRUCK TANKS • TRANSPORTS • DOMESTIC SYSTEMS
BULK PLANTS • APPLIANCES • FITTINGS • INDUSTRIAL GAS PLANTS

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B-P News brings you Facts, New Ideas, New Methods, News and Reports. You'll want to read every chapter in the Management Series. Don't miss an issue!

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☐ **1 Year $2.00** ☐ **Payment Enclosed**

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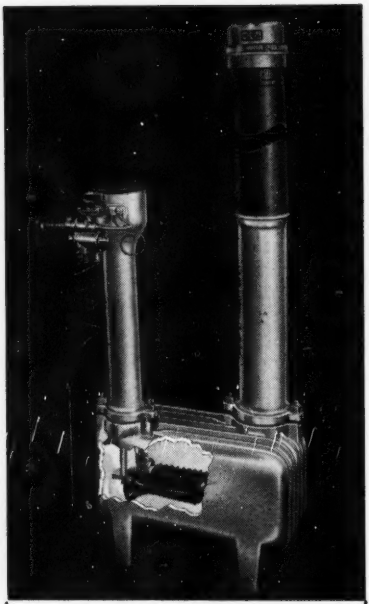
NAME_____

MAIL ADDRESS_____

CITY_____ **ZONE**_____ **STATE**_____

My connection with the LP-Gas Industry is_____



Model 950-B

BLU-BLAZE

Stock Tank Heater

Vent pipe Weep Holes plus 3/8" thick cast construction eliminates condensate problem.

- Constant high efficiency assured by BLU-BLAZE Draft Caps.
- Efficient drilled port, cast iron, Venturi type burner—18,000 BTU Capacity—Factory installed and adjusted.
- Automatic controls optional.

Write for literature and prices

TESCO *Incorporated*

110 S. NORFOLK • TULSA, OKLA.

Jenkins Publications Names Frank Enright Cleveland Mgr.

FRANK ENRIGHT

Frank J. Enright has been appointed Cleveland District Manager for Jenkins Publications. The magazines under Mr. Enright's supervision will include BUTANE-PROPANE *News*, GAS, and *Western Metals* as well as the technical books for these industries. He will headquarter in the publication's Cleveland, Ohio office at 1836 Euclid Ave. (15).

The new Jenkins' representative is a well-known advertising man in the mid-West and is a past president of the TF Club of Cleveland, a member of the Cleveland Advertising club and the Pittsburgh Industrial Advertising council. He is also a director of the Industrial Marketers of Cleveland.

Also joining the publishing firm as assistant to Mr. Enright is Joseph R. Geryk, formerly assistant to the promotion and sales managers of Platt Publications, Cleveland, and an account representative in the Management Controls div. of Remington Rand, Inc., Cleveland and Akron, Ohio. He is a University of Michigan graduate and served in the Army air corps during World War II.

Homefolks Name Lyle Blanton Hereford, Tex. 'Man of Year'

Lyle Blanton, Blanton Butane, Inc., Hereford, Tex. is "Man of the Year" of his home town, named to that honor by the Hereford Lions Club for outstanding service to his com-

PROPANE TRUCK TANKS
FOR ALL DELIVERY NEEDS

In streamline (illustrated) and walkway types, 1,181 gal. to 2,000 gal. water capacities. Constructed in accordance with A. S. M. E. Code, Par. U-69, 1950 edition. Mounted on your chassis complete with valves, fittings, pump, hoses. Unit ready for immediate use when picked up. Write for details.

Also 500 gal. & 1,000 gal. Domestic Tanks (Salem System)

Storage Tanks Up to 6,000 gals.

McNAMAR AND CROWLEY

McNAMAR AND CROWLEY, INC.
SALEM 5, ILLINOIS

Do Your Customers A Favor!
Sell the Complete Line of
Martin
GAS SPACE HEATERS
Pull in Sales + Satisfy Customers
8 Fully Vented Heaters **22 Unvented Heaters**
All Martin Heaters AGA approved

Write your jobber or direct for new free complete catalog

Over 45 Years Stove Experience

MARTIN STAMPING & STOVE CO., Huntsville, Ala.

munity. Mr. Blanton, a pioneer in the LPG industry, dismissed the honor modestly with "Oh, I guess they didn't have anybody else to hang the title on," but his local newspaper said he was cited for "unselfish work on behalf of Boys Ranch since its inception in 1939.

"In addition to supplying the youth organization with its bottled gas for five years until a natural gas pipeline came in, he still retains active interest as a member of the ranch's board of directors."

Mr. Blanton also has served as City commissioner and as a private pilot, has made his airplane available to persons in distress by flying them to hospitals and medical specialists.

Green's Fuel Distributors Meeting Held in Nassau

Nassau in the British West Indies was the site of the recent 20th anniversary convention of Green's Fuel, Inc., where 150 Green's Fuel distributors and their wives were registered at the British Colonial hotel.

Immediately following an organizational luncheon The Honorable Asa H. Pritchard, M.H.A., speaker of the Bahamas House of Assembly, gave the welcoming address. He was followed by Pope F. Brock, counsel for The Coca-Cola Co., Atlanta, Ga., who talked on the "Value of Trade-Mark Merchandising."

Howard E. Felt, vice president of Warren Petroleum Corp., Tulsa, Okla., then discussed "Long Range Planning for Our Industry," while C. E. Bartlett, Ruud Manufacturing Co., Philadelphia, Pa., addressed the group on "Profits Start with Water Heaters." The last speaker was H. A. Goodwin, The Bastian-Blessing Co., Chicago, Ill., who gave an illustrated talk on "Why L.P. Gas Accidents Happen."

See the NEW VIKING L-P GAS PUMPS

NOW AVAILABLE WITH . . **MECHANICAL SEAL**

5-10-20-30-55 GPM SIZES

See the complete new line of Viking LP-Gas pumps . . . motorized bulk station units, truck mounting style and hand drive unit.

New outstanding features include:

1. **Pumps with MECHANICAL SEAL or metallic packing in extra long stuffing box.**
2. **New inner bearing on power driven units requires no lubrication.**
3. **Treated head and bracket gaskets.**

Added to these is the revolvable casing for handy port location, integral thrust bearing and the famous Viking "gear within a gear" pumping principle.

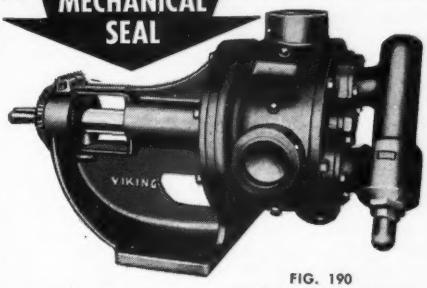


FIG. 190
TRUCK MOUNTING PUMP
with MECHANICAL SEAL

For complete information ask for new free bulletin 2303B & SP-312B.

VIKING PUMP CO. CEDAR FALLS IOWA

Cylinder Trucks Cut Delivery Costs!

The M/W trade mark signifies the cylinder truck is made by the world's oldest and original manufacturer of trucks for handling LPG cylinders.

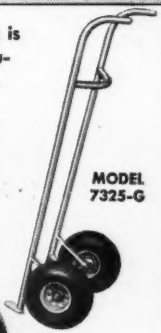
MODEL 7325

Standard cylinder truck shown at left is available with size 10 x 2.75 tires in two types.

Air Tires.....$19.25
Semi-pneumatic $18.20

Truck at right is equipped with size 10 x 3.50 General tires having separate inner-tubes.

A popular model at.....$27.40



MODEL 7325-G

WRITE FOR COMPLETE CATALOG

Trucks also available for handling large 400 pound bulk cylinder. Write for illustrated literature and prices.

Pneumatics are featured on M/W trucks.

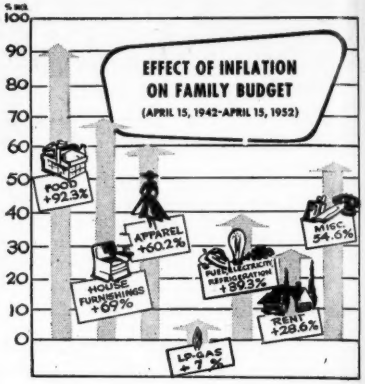
MANUFACTURED BY
MOELLENBROCK & WILKE
WASHINGTON, MO.

Survey Shows LPG Costs Rise Only 7% In 10-Year Period

Despite zooming general living expenses, the cost of liquefied petroleum gas has remained relatively stable, reveals a "spot survey" by L.P. Gas Information Service, Chicago, among nation's dealers. In contrast to an average rise of 63% in all items contained in U.S. Bureau of Labor Statistics cost of living index, L.P. gas rates increased only 7% in ten-year period ending April 15, 1952.

Food prices registered the sharpest gain with a 92.3% rise. Other increases were as follows: house furnishings—69%; apparel—60.2%; miscellaneous—54.6%; fuel, electricity and refrigeration—39.3%, and rent—28.6%.

Since the government bureau's statistics are based on data supplied from 34 major cities, L.P. gas is not represented in either the average cost of living index for all items or in the fuel, electricity and refrigeration classification.



Industry leaders attribute the stability of butane-propane rates in contrast to the general rise in living costs to several factors. Among these are: (1) The tremendous growth in public acceptance and use of the fuel with resulting distribution economies; (2) the sharp increase in number of bulk plants throughout the country and consequent reduction in the area served by each; (3) the "incentive" rates offered to customers by most dealers to stimulate the use of new appliances, and (4) various technical and service advances contributing to greater efficiency and economy.

Striking evidence of the industry's rapid growth was given in a recent consumer survey which revealed that two-thirds of the families who now have LPG ranges have been cooking with the fuel less than eight years. The range is the No. 1 appliance in the millions of homes all across the nation equipped for LPG service.

ARMSTRONG

Presents

ANOTHER HEATER HIT

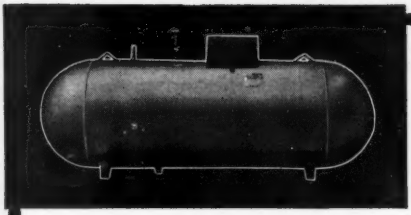
A Radiant Circulator for Natural or LP Gas. Fully Vented. AGA Approved.

Model 5200 has built in draft diverters, completely enclosed combustion chambers. Pyrex brand glass panels in front. Has pressure regulator, manually operated pilot burner. Brown porcelain enamel finish. 30" high. 4 or 5 radiants. 20,000 or 30,000 BTU.

Order from your Jobber or write for literature on complete heater line.

WHEN IT'S AN ARMSTRONG DEPEND ON IT! IT'S THE BEST OF ITS KIND

ARMSTRONG PRODUCTS CORP.
Quality Since 1899
Dept. BP Huntington 12, W. Va.



The tanks that mean dollars to dealers . . .

McNAMAR LPG TANKS

McNamar LPG Tanks are popular with LPG dealers because they move fast and give dependable service — You can get immediate delivery on most sizes from 115 gallons and up.

McNAMAR

BOILER & TANK COMPANY

BOX 868 • TULSA, OKLAHOMA

PETROLANE

Earl Ewing, Kern County Division Manager for Petrolane Ltd., has been directly connected with the Petroleum Industry for over 17 years. Earl's experience in this field enables us to offer our wholesale customers, in the wide area served by equipment from his Division, Petrolane's usual high quality of service and dependability of supply.

EARL EWING

— L. P. G. Corporation —

PETROLANE'S WHOLESALE DISTRIBUTOR

1696 EAST HILL STREET
LONG BEACH, CALIFORNIA

BOX 1426, BAKERSFIELD
CALIFORNIA

BOX 111, YUBA CITY
CALIFORNIA

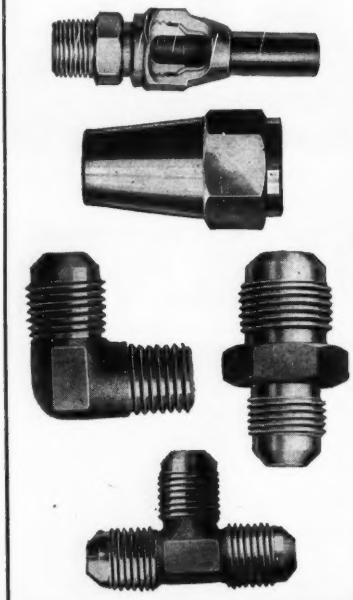
A Complete line of

Brass Fittings

A wide range of sizes and types for every fitting application.

Rigid inspection and quality control insure tight safe joints on L.P. gas installations.

Investigate the Hahn quality line. Write for catalog and prices.



American Manufacturing Co.
INCORPORATED
211 Walnut Street • Hartford, Conn.

Retail Personnel Training Urged at Coleman Co. Clinic

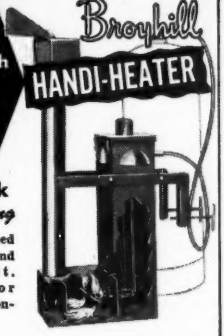
Adequate training programs properly presented to the retailer's sales and service personnel by manufacturers and their distributors will result in more satisfied customers for gas fuel, Coleman Co. officials were told by LPG and utility firm personnel attending a recent Coleman three-day sales and service clinic at Wichita, Kan.

Present for the meeting were representatives of 14 LPG distributors and 18 gas utilities. Begun last year, the Coleman "Homecoming"

Recent additions to the Coleman Co.'s line of gas-fired furnaces for use with its Blend-Air heating system, got a careful going over by these Eastern L.P. gas distributors, in Wichita, Kan., recently for a three-day conference with the manufacturer. From left to right—C. L. Burrows, Coleman national sales manager; George Foy, R. B. Sehagen & Co., Rochdale, Mass.; S. J. La Pinsky (kneeling), Home Gas Corp., Housatonic, Mass.; Russell W. Wetgen, Perfect Propane Gas Co., Hawley, Pa.; Ralph Liporace, Blue Flame Gas Co., Inc., Hoosick Falls, N.Y.; and I. E. Rowe, United Gas Corp., Jackson, Miss.

Gain More LP Gas Customers with the Farmers Choice . . .
Proved on thousands of farms!

Broyhill HANDI-HEATER



The Stock Tank Heater *Featuring*

the newly designed combination pilot and thermocouple unit. Engineered for extreme weather conditions.

Available with or without automatic thermostat controls. Fits any type tank. Lights quickly and easily. Has safety pilot. DISTRIBUTORS . . . we will demonstrate this new Broyhill Handi-Heater upon your request. Learn how easy it is to sell this profit-making heater to an unlimited market.

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DAKOTA CITY, NEBRASKA

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for UTILITY
INDUSTRY
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Your Assurance of a Good Job

Serving utility and industry for over thirty years

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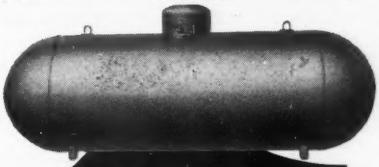
LP GAS EQUIPMENT

Rochester Criterion Gauges—Aeroquip Hose and Fittings—Weco-Trol (automatic control) I C C Cylinders—Okadee Valves

GES GAS EQUIPMENT SUPPLY COMPANY
GAS EQUIPMENT SUPPLY CO.
127 ELLIS ST. N. E. ATLANTA, GA.



BURNHAM

Burnham LP-Gas Tanks fit every need. Complete line available for above and below-ground storage installations. Built to ASME Specifications. Listed by Underwriters' Labs.

Burnham RADIANT HEATING

LP Tanks
Burnham Corporation
IRVINGTON, N. Y.

BUY YOUR FITTINGS

from "America's

MOST COMPLETE BRASS FITTINGS HOUSE"

Fittings from the S. H. Leggitt Co. are precision machined from the best brass obtainable and maintain a degree of high quality unsurpassed in the industry.

PRICED TO SAVE YOU MONEY!

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Write for Catalog and prices.

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GAS DEALERS!

IF YOU OPERATE IN A "HARD WATER" AREA YOU CAN DOUBLE YOUR BUSINESS WITH YOUR PRESENT CUSTOMERS BY ADDING FILTER-SOFT—A NEW METHOD OF CONVERTING HARD WATER INTO SOFT. SERVICING. FILTER-SOFT, ALONG WITH BOTTLED GAS, IS A NATURAL.

Get a

***Filter-Soft* WATER**

Franchise

You have the trucks and the customers—all you need are softeners and inexpensive regenerating equipment. We furnish everything—simple installing instructions and a selling program which hundreds of dealers are using successfully today.

Territory being allotted daily.
Write now for interesting details.

FILTER-SOFT CORPORATION
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program brings heating equipment retailers to the Coleman Heating Institute in Wichita for these clinics. More than 1700 retailers have completed the course and the company eventually expects to bring a total of 7000 key dealers to Wichita.

"Don't forget the man in the gas shop," one representative said, "his knowledge of a particular appliance very often is transmitted to the customer. If he is 'sold' on it, the chances are the customer will be too." LPG and utility men alike encouraged Coleman to continue its research and development in the field of year-round air conditioning. An all-gas unit priced for the mass market would be welcomed by fuel distributors, Coleman officials were also told.

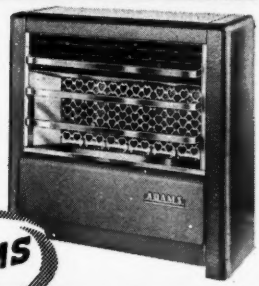
Gas Appliance Short Course Draws 153 Students at Tulsa

The seventh annual Short Course in Gas Appliances was held May 26-28 at University of Tulsa with 153 registrants from 19 states consisting of supervisors and appliance service personnel from gas companies and appliance dealers.

Six different classes were given on automatic controls while other classes concerned venting, automatic ignition for gas ranges, servicing gas clothes dryers, water heating equipment and gas cooking. Controls represented included Robertshaw-Fulton, Minneapolis-Honeywell, General, White-Rodgers, Perfex and Detroit Lubricator. Three classes on clothes dryers featured Bendix, Hamilton and Whirlpool.

Lectures given in the 15 courses will be assembled into a reference manual. There were 125 students who qualified for certificates of completion.

3 New Models



ADAMS

RADIANT HEATERS

These unvented safety cabinet circulators are real beauties. Fine heating qualities with smooth operating ADAMS LP Burner.

Write for catalog and prices.

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1500 NORTH AVE., W. PITTSBURGH 33, PA.

be Tops with your Customers

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Rochester Criterion Gauges—Aeroquip Hose and Fittings—Weco-Trol (automatic control) I C C Cylinders—Okadee Valves

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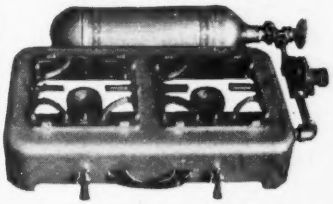
BOOST YOUR SALES
with a Bottled Gas
Salesman's Demonstrator



Here is an amazing new sales-getter for you. It's the new portable bottled gas salesman's demonstrator cooking stove; AL-5 Aluminum Delux Model. It's a complete unit, no connections to make. Just set it down and light it. I.C.C. cylinder. Capacity 4 lbs. Propane gas burns 25 hours on one burner.

Your cost $23.70
Retail Price.....$39.50

Cast iron model UF-2, your cost $19.85; retail price $34.50.

HOME GAS EQUIPMENT CO.
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TRUCK TANKS

Twin or single barrel—Light weight—Low in cost—Full or semi streamlined—ASME U69.

Built to Your Specification and Size

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ETHYL MERCAPTAN
purified

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- The accepted standard odorant for natural or liquefied petroleum gas — gives sure but harmless warning.
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Mallinckrodt® MALLINCKRODT CHEMICAL WORKS
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GRIFFITHS
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Conversion Parts

We can supply a wide assortment of spuds, orifices and other parts for converting domestic and commercial equipment to any type gas. Also, a complete line of repair parts for all types of gas meters.

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Serving the Gas Industries For Over 40 Years

Warren Petroleum Liquidates Five of Its Subsidiaries

Five wholly owned subsidiaries of Warren Petroleum Corp., Tulsa, Okla., were liquidated June 30, according to W. K. Warren, board chairman, and James E. Allison, president. The subsidiaries are the Warren Oil Corp., the Devonian Co., Warren Maritime Corp., Warren Pipe Line Co. and Dri-Gas Corp.

Operations conducted by the subsidiaries will be handled within divisions of the corporation except Dri-Gas Corp. which will operate as a separate division of Warren. The liquidation is expected to permit substantial savings in tax assessments and a more economical administration of the corporation.

Both Warren Oil Corp. and Devonian Co. have been engaged in crude oil and gas production. The Warren Maritime Corp. has operated the propane tank ship, "Natalie O. Warren"; three LPG barges and an LPG terminal at Newark, N.J. The new pipe line division has operated a light hydrocarbons gathering system and pipe line in Texas while the Dri-Gas Co. has operated wholesale and retail distribution of LPG in several midwestern states.

Underground Storage Planned Near McPherson, Kansas

The NCRA Refinery, McPherson, Kan., is exploring the underground storage of liquid petroleum gases in the known salt beds underlying most of the western half of McPherson county, Kan. The refinery is engaged in drilling test wells now.

G. H. Billue and his Security Underground Storage Co. of Wichita Falls, Tex., have beeen commissioned to test the salt beds and to determine the possibility of establishing underground storage facilities.